

THE

PURSUIT OF KNOWLEDGE

UNDER DIFFICULTIES.

BY

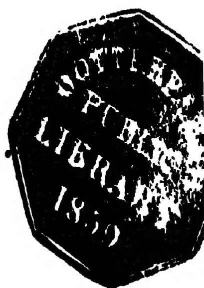
GEORGE L. CRAIK.

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IN TWO VOLUMES—VOL. I.

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PREFACE.

This book was originally published, in 1830, under the superintendence of the Society for the Diffusion of Useful Knowledge; and it was reproduced in another form, under my own care, in 1845. The revision which it underwent on that occasion, however, extended only to such statements as were affected by the lapse of time. Appearing now with the name of the writer, it is restored throughout more nearly to the state in which it first left my hands; and I have also taken the opportunity of introducing a few additional notices of eminent individuals, some of them still living, who have distinguished themselves by one form or another of what may be called the Pursuit of Knowledge under Difficulties. Of that happy title, however, which has had the fortune to become a sort of proverbial phrase, or 'household word,' and to which the book no doubt owes much of whatever success it has had, I ought to say that I cannot claim

the credit: it belongs, I have always understood, to LORD BROUGHAM, who, finding time for everything, [illegible] the little work by going over the proof-sheets, at least of the first volume, and some other touches of whose expressive pen, it may interest the reader to know, are elsewhere to be found in it: although I would not have his Lordship, or any one but myself, to be held responsible for either its statements as to matters of fact, or any indications of opinion on controverted questions:—of which last, however, there are really none, I believe, that can give pain or offence to anybody.

G. L. C.

Queen's College, Belfast
27th October, 1857.



CONTENTS OF VOL. I.

CHAPTER I.

Page

Classification of Difficulties.—Our natural Love of Knowledge.—The Philosophy that lies in Common Things. Newton; Gravitation.—Galileo; the Pendulum.—Torricelli and Pascal; the Barometer.—Mezzotinto.—Montgolfier; the Balloon.—Self-Teaching . . . 1

CHAPTER II.

Strength of the Passion for Knowledge.—Pythagoras; Archimedes; Leibnitz; Gal[illegible]; Heyn[illegible] . . . 23

CHAPTER III.

Obscure Origin and Humble Station:—Epictetus; Protagoras; Cleanthes; Hagy; Winckelman; Arnigio; Duval; Bandinelli; Scaliger; Protogenes; Baudouin; Gelli; Metastasio; Haydn; Opie; Parini; Prideaux; Inigo Jones; Chief Justice Saunders; Linnaeus; Lomonosoff; B. Jonson; the Milners; John Hunter . .

CHAPTER IV.

Artists rising from the lower to the higher branches:—B. Cellini; Q. Matsys; Ibbetson; Kent; Townes; Kirby; Schiavoni; Hogarth; Sharp; Thew; Caslon.—Late Learners:—Cromwell; Sir W. Jones; Cato the Censor; Alfred; Molière; Valerianus; Vondel; Pitot; Paucton; Ogilby . . .

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CHAPTER II.

Strength of the Passion for Knowledge.—Pythagoras; Archimedes; Leibnitz; Galileo; Heyne 23

CHAPTER III.

Obscure Origin and Humble Station:—Epictetus; Protagoras; Cleanthes; Haüy; Winckelman; Arnigio; Duval; Bandinelli; Scaliger; Protogenes; Baudouin; Gelli; Metastasio; Haydn; Opie; Parini; Prideaux; Inigo Jones; Chief Justice Saunders; Linnæus; Lomonosoff; B. Jonson; the Milners; John Hunter 36

CHAPTER IV.

Artists rising from the lower to the higher branches:—B. *Cellini*; *Q. Matsys*; *Ibbetson*; *Kent*; *Towne*; *Kirby*; Schiavoni; Hogarth; Sharp; Thew; Caslon.—Late Learners: Cromwell; Sir W. Jones; Cato the Censor; Alfred; Molière; Valerianus; Vondel; Pitot; Paucton; Ogilby 62

CHAPTER V.

Page

Early Age at which greatness has been achieved:—Newton: James Gregory; Torricelli; Pascal; Sidney: Otway: Collins, etc.; Mozart; Raphael: Correggio; Politian; Mirandola 77

CHAPTER VI.

Self-educated Men:—T. Simpson; Edmund Stone; Jerome Stone 95

CHAPTER VII.

Pursuit of Knowledge united with that of Business:—Cicero: Sir William Jones; Julius Cæsar: Frederic the Great: Sully; De Thou; Bacon; Clarendon; Selden; Hale: Grotius . 113

CHAPTER VIII.

Literary Soldiers —Descartes; Ben Jonson; Buchanan; Cervantes.—Sailors:—Dampier; Davis; Drury; Falconer; Giordani; Fransham; Oswald; Columbus; Cook; Vancouver: Collingwood 133

CHAPTER IX.

Literary Pursuits of Merchants:—Solon; Guys; Dudley North; Ricardo 147

CHAPTER X.

Literary Pursuits of Booksellers and Printers:—Solomon Gesner; Aldus Manutius, Paul, and Aldus the Younger; R. Stephens; H. Stephens; Scapula; Colinæus; Badius; Froben; Oporinus; Ruddiman; Bowyer; Nichols; Richardson 162

CHAPTER XI.

Booksellers and Printers continued:—W. Hutton; R. Dodsley; Almon; Cruden; the Panckouckes; Rothscholtz; Bagford; Ames; Herbert; Paterson.—Pursuit of Literature in other Trades:—Walton; Defoe; Lillo 180

CHAPTER XII.

Page

Self-educated Men continued :—Ferguson.—Influence of Accident in directing Pursuits :—Rennie ; Linnæus ; Vernet ; Caravaggio ; Tassie ; Chatterton ; Harrison ; Edwards ; Villars ; Joly ; Jourdain ; Bandinelli ; Palissy 204

CHAPTER XIII

Early Life of Benjamin Franklin 224

CHAPTER XIV

Life of Franklin continued 239

CHAPTER XV

Franklin's Electrical Discoveries 250

CHAPTER XVI.

Devotion to Knowledge in extreme Poverty:—Erasmus ; Kepler ; Schaeffer ; Bullinger ; Musculus ; Postellus ; Castalio ; Adrian VI. ; Perrier ; Claude Lorraine ; Salvator Rosa ; Marmontel ; Hoche ; Lagrange ; Dr. Johnson ; Dr. Parr ; Spagnoletto ; Le Jay, Castell ; Davies ; Tytler ; William Davy. —In Exile and Imprisonment :—Ovid ; Boethius ; Buchanan ; Tasso ; Smart ; Maggi ; Le Maistre ; Lorenzini ; Prynne ; Madame Roland ; Raleigh ; Lady Jane Grey ; James I. (of Scotland) ; Lovelace 269

CHAPTER XVII.

Defects of the Senses or other Natural Bodily Powers overcome :—Demosthenes ; De Beaumont ; Navarete ; Saunderson ; Rugendas ; Diodotus ; Didymus ; Eusebius ; Nicasius de Voerda ; De Pagan ; Galileo ; Euler ; Moyes . . . 291

CHAPTER XVIII.

Distinction acquired by the Blind in other Intellectual Fields :—Homer ; Milton ; Salinas ; Stanley ; Metcalf ; Henry the Minstrel ; Scapinelli ; Blacklock ; Anna Williams ; Huber . 311

CHAPTER XIX.

Mr. Prescott ; M. Augustin Thierry ; M. Mary-Lafon . 325

CHAPTER XX.

Page

Account of James Brindley; Canals.—Other Examples of Self-taught Mechanicians:—Rannequin; Zabaglia; Ferracino; Harrison 340

CHAPTER XXI.

Acquisition of Languages:—Magliabecchi; Hill; Wild; Aram; Purver; Pendrell 364

CHAPTER XXII.

Dr. Alexander Murray 383

CHAPTER XXIII.

Self-tuition of Poets:—Shakespeare; Burns 404

PORTRAITS.

Captain JAMES COOK, F.R.S. . . . . *Frontispiece.*

JOHN HUNTER, F.R.S. . . . . Page 52

JAMES FERGUSON, F.R.S. 204

BENJAMIN FRANKLIN, LL.D. 224

THE

PURSUIT OF KNOWLEDGE

UNDER DIFFICULTIES.

CHAPTER I.

CLASSIFICATION OF DIFFICULTIES: OUR NATURAL LOVE OF KNOWLEDGE: THE PHILOSOPHY THAT LIES IN COMMON THINGS: NEWTON: GRAVITATION: GALILEO: THE PENDULUM: TORRICELLI AND PASCAL: THE BAROMETER: MEZZOTINTO: MONTGOLFIER: THE BALLOON: SELF-TEACHING.

THE various individuals who, in every age of the world, have distinguished themselves by their devotion to intellectual pursuits in the midst of more or less unfavourable circumstances might perhaps be conveniently enough comprehended in four classes; to be designated, for shortness sake, the Conquerers of Ignorance, the Conquerors of Adversity, the Conquerors of Business, and the Conquerors of Custom. Under the head of the Conquerors of Ignorance would come all who, by their own efforts, have emancipated themselves from ignorance, whether by partially or wholly educating themselves, or by seeking and finding instruction notwithstanding the discouragement or opposition of friends, the difficulties arising from scantiness of means, a neglected youth, or any of the other causes which usually produce permanent illiteracy. The Conquerors

of Adversity would be those who have clung to the pursuit of knowledge in spite of menial, laborious, or other uncongenial employments, depressing poverty or dependence, confinement, persecution, disease, or deficiency of any of the ordinary corporeal senses. The Conquerors of Business would include all who have made themselves remarkable by their acquirements or achievements in literature or science while beset by the usually engrossing demands of what is called active life. Finally, the title of the Conquerors of Custom would take in all those who, in their pursuit of knowledge, have had to surmount impediments interposed by the habits, fashions, or prejudices of the society in which they moved.

But, although instances of all these different kinds of conquest will be found in the following pages, they will not be found arranged with any rigorous adherence to this classification. Our little work is not intended to be a scientific treatise, but only a sort of *florilegium*, so to speak, or selection of the examples and histories belonging to our subject which are likely to prove the most attractive and stimulating. The classification, therefore, having been once stated, need not farther embarrass us.

It is a pity that, as we grow up towards the maturity of our faculties, we fall away in so many respects from what we were in our childhood; for the most beautiful and perfect character of all would be that in which the man, with his larger experience and full-grown powers, was still in heart and dispositions a child. If we could but retain with us always the ingenuousness, the gentleness, the docility, the simple but yet warm affections of opening life, unimpaired by the hardening influences of the world, we should be not only the happier for it, but should without doubt be gainers, too, as to those things which most engage the ambition and flatter the pride of manhood.

We should be wiser if we sought wisdom more like little children. SIR ISAAC NEWTON, of all men that ever lived, is the one who has most extended the territory of human knowledge; and he used to speak



SIR ISAAC NEWTON.

of himself as having been all his life but "a child gathering pebbles on the sea-shore;"*—expressing by that similitude, probably, not only his modest conviction how mere an outskirt the field of his discoveries was, compared with the vastness of universal nature, but an allusion likewise to the spirit in which he had pursued his investigations, as having been that, not of selection and system-building, but of child-like alacrity in seizing upon whatever contributions of knowledge Nature threw at his feet, and of submission to all the intimations of observation and experiment. On other occasions he was wont to say, that, if there was any mental habit or endowment in which he excelled the generality of men, it was that of patience in the examination of the facts and phenomena of his subject. This was merely another form of that teachableness which constituted the character of the man. He loved Truth, and wooed her with the unwearying ardour of a lover. Other speculators had consulted

* "As children gathering pebbles on the shore."—*Milton, Par. Reg.* iv. 330.

the book of Nature principally for the purpose of seeking in it the defence of some favourite theory; partially, therefore, and hastily, as one would consult a dictionary: Newton perused it as a volume altogether worthy of being studied for its own sake, and hence both the patience with which he traced its characters, and the rich and plentiful discoveries with which the search rewarded him. If he afterwards classified and systematized his knowledge like a philosopher, he had first, to use his own language, gathered it like a child.

It is in childhood that we may be said most to love knowledge for its own sake. We know none of its uses except the gratification which it gives, and receive it, like the light of heaven or the fragrance of the flowers, as an enjoyment that needs no ulterior utility to make it delightful to us. Curiosity awakens in the infant breast with thought itself; and at that most interesting period especially, when the mind, like a seedling that has just made its way through the ground, is pushing forth, as it were, its first leaves and buds of promise, this passion, for it is then truly such, seems to be almost master of all the rest, so that a lively child shall in general be easily seduced at any time from either his food or his rest, or a sport which merely gives occupation to his physical activities, by the attractions of anything which offers him intellectual excitement and exercise, provided it do not present itself to him in the shape of a task, or be made revolting to his imagination by the associations of task-work. For it is not merely an entertaining tale that arrests the ear at this period, but knowledge of whatever kind, if communicated simply as knowledge. You never stated a fact to a child, in language which he could comprehend, to which he did not listen with eager attention. The questions he asks, and he is ever asking questions, are not confined to subjects that engage and amuse the fancy, but are more commonly

directed to points having something of a solid and philosophic importance. It is matter for reflection that he seeks—not to divert the *ennui* of the moment, but to store up and grow wise upon. Savages, too, who are men in physical powers, but children in intellectual tastes and habits, bear a like attestation with children to the love which we naturally have for knowledge by the eagerness with which, unless when brutified by vice or misery, they uniformly listen to whatever information may be imparted to them by their civilized visitors. Nothing is so intensely interesting, either to a child or to a savage, as a philosophical experiment—except the explanation of it. The excited curiosity in this case hungers for its aliment in both with a keenness which does indeed show strikingly how much might be done in the work of education merely by appealing to this principle of our mental constitution, and tempting us to the pursuit of knowledge by the love which we naturally feel for it. When the sense of ignorance is once fairly awakened, it is almost too painful to be borne; and the instructor's easy and delightful task, therefore, if he would but give himself to it, is mainly to excite in his pupils this natural thirst for knowledge, and then to lead them to the fountain where they may drink and be satisfied.

But to return to the teachableness preserved by such minds as those of Newton to the very end of life. It is indeed most interesting and instructive to consider the manner in which both this great man and many others, possessing a portion of his observant and inventive genius, have availed themselves, for the enlargement of the boundaries of philosophy, of such common occurrences as, from their very commonness, had escaped the attention of all less active and original minds. We are not now speaking of such lucky discoveries as mere chance has sometimes suggested, even

to the most inattentive understandings. How far we are indebted to this source for many of those ordinary arts, the origin of which is lost in antiquity and fable, it would not be very easy to determine. The accounts relating to such subjects have been principally handed down to us by poetry and popular tradition, both which are lovers of the mysterious and the marvellous. Hence, there is reason to believe that they are much too full of those wonders which strike an unenlightened fancy; and that, instead of the slow and successive efforts by which the arts in question were actually discovered and improved, there has been substituted, in many cases, the more dramatic incident of a sudden inspiration, merely for the sake of effect. Nay, in those times, the discoverer himself might probably be not unfrequently the first to contrive and spread the fiction; preferring, as he would in all likelihood do, the credit of being the chosen transmitter of supernatural communications to his fellow-mortals, to that of excelling those around him in such mere human and unvalued attributes, as philosophic sagacity and patience. Or he might be self-deceived by his own ardour. The legend of a mystical origin, besides, was not only the best recommendation by which any invention could, in the early ages of the world, be introduced to the notice of men, but, perhaps, under the tyranny of a jealous and engrossing superstition, was almost a necessary passport to its reception. However this may have been, it is worth remarking, that the current tales had probably some share in leading away the spirit of antiquity from that investigation and application of facts, whence chiefly has arisen the glory of the philosophy of modern times. Speculation and conjecture are now permitted to work only in association with observation and experiment.

But, of all sorts of observation, that which exhibits the most penetrating and watchful philosophy is, when,

out of the facts and incidents of every-day experience, a gifted mind extracts new and important truths, simply by its new manner of looking at them, and, as it were, by the aid of a light of its own which it sheds upon their worn and obliterated lineaments. From one of these simple incidents Sir Isaac Newton is said to have read to the world, for the first time, the system of the universe. It appears to have been in the twenty-third year of his age, or the autumn of 1665, that this extraordinary man was sitting, as we are told, one day in his garden, when an apple fell from a tree beside him.*

* "It was doubtless," writes Sir David Brewster, "in the same remarkable year 1666, or perhaps in the autumn of 1665, that Newton's mind was first directed to the subject of gravity. He appears to have left Cambridge some time before the 8th of August 1665, when the College was 'dismissed' on account of the plague, and it was therefore in the autumn of that year, and not in that of 1666, that the apple is said to have fallen from the tree at Woolsthorpe, and suggested to Newton the idea of gravity. Neither Pemberton nor Whiston, who received from Newton himself the history of his first ideas of gravity, records the story of the falling apple. It was mentioned, however, to Voltaire by Catharine Barton, Newton's niece, and to Mr. Green by Martin Folkes, the President of the Royal Society. We saw the apple-tree in 1814, and brought away a portion of one of its roots. The tree was so much decayed that it was taken down in 1820, and the wood of it carefully preserved by Mr. Turnor of Stoke Rochford. See Voltaire's *Philosophie de Newton*, 3me part. chap. iii.; Green's *Philosophy of Expansive and Contractive Forces*, p. 972; and Rigaud's *Hist. Essay*, p. 2." —*Memoirs of Life, Writings, and Discoveries of Sir Isaac Newton*, 1855. Vol. I., pp. 25, 26, 27.—All that Pemberton says is —"The first thoughts which gave rise to his *Principia* he had when he retired from Cambridge in 1666, on account of the plague. *As he sat alone in a garden*, he fell into a speculation on the power of gravity; that, as this power is not found sensibly diminished at the remotest distance from the centre of the earth to which we can rise, neither at the tops of the loftiest buildings, nor even on the summits of the highest mountains, it appeared to him reasonable to conclude that this power must extend much farther than was usually thought. Why not as high as the moon? said he to himself," &c.—*View of Sir Isaac Newton's Philosophy; Preface.*

His mind was perhaps occupied, at that fortunate moment, with one of those philosophical speculations on space and motion which are known to have, about this time, engaged much of his attention; and the little incident which interrupted him was instantly seized upon by his eager spirit, and, by that power which is in genius, assimilated with the substance of his thoughts. The existence of gravitation, or a tendency to fall towards the centre of the earth, was already known, as affecting all bodies in the immediate vicinity of our planet: and the great Galileo had even ascertained the law, or rate, according to which their motion is accelerated as they continue their descent. But no one had yet dreamed of the gravitation of the heavens, —till the idea now first dimly rose in the mind of Newton. The same power, he may be supposed to have said to himself, which has drawn this apple from its branch, would have drawn it from a position a thousand times as high. Wherever we go, we find this gravitation reigning over all things. If we ascend even to the top of the highest mountains, we discover no sensible diminution of its power. Why may not its influence extend far beyond any height to which we can make our way? Why may it not reach to the moon itself? Why may not this be the very power which retains that planet in its orbit, and keeps it revolving as it does around our own earth? It was a splendid conjecture, and we may be sure that Newton instantly set all his sagacity at work to verify it. If the moon, he considered, be retained in her orbit by a gravitation towards the earth, it is in the highest degree probable that the earth itself, and the other planets which revolve around the sun, are, in like manner, retained in their orbits by a similar tendency towards their central and ruling luminary. Proceeding then, in the mean time, upon this supposition, he found by calculation, and by comparing the periods of the several planets

and their distances from the sun, that, if they were really held in their courses by the power of gravity, that power must decrease in a certain proportion, according to the distance of the body upon which it operated. This result he had already anticipated from the consideration that, although we could not detect any such diminution within the comparatively small distance to which our experience was limited, the fact was yet consistent with the whole analogy of nature. Supposing, then, this power, when extended to the moon, to decrease at the same rate at which it appeared to do in regard to the planets which revolved around the sun, he next set himself to calculate whether its force, at such a distance from the earth, would in reality be sufficient to retain that satellite in its orbit, and to account for its known rate of motion. This step of the discovery was marked by a very singular circumstance, and one strikingly illustrative of the truly philosophic character of this great man's mind. In the computations which he undertook for the purpose of his investigation, he naturally adopted the common estimate of the magnitude of the earth, which was at that time in use among our geographers and seamen. Indeed, no other yet existed for him to adopt: but it was even then known to scientific men to be loose and inaccurate. It allowed only sixty English miles to a degree of latitude, instead of sixty-nine-and-a-half, which is the true measurement. The consequence was, that the calculation did not answer; it indicated, in fact, a force of gravity in the moon towards the earth, less by one-sixth than that which was necessary to give the rate of motion actually possessed by that satellite. Another might have thought this but a trifling discrepancy, and, in such circumstances, might have taxed his ingenuity to account for it in a variety of ways, so as still to save the beautiful and magnificent theory which it came so unseasonably to demolish. But Newton was too true a

philosopher, too single-hearted a lover of truth, for this. In his mind, the refutation was a complete one, and it was admitted as such at once. He had made his calculation with care, although one of its elements was false: it did not present the result it ought to have done, had his hypothesis been as true as it was brilliant; and, in his own estimation, he was no longer the discoverer of the secret mechanism of the heavens. By an act of self-denial, more heroic than any other recorded in the annals of intellectual pursuit, he dismissed the whole speculation from his mind, even for years. We need hardly state how gloriously this sacrifice was in due time rewarded. Had Newton, instead of acting as he did, obstinately persevered in the partially erroneous path into which he had thus been misled, it is impossible to say into how many additional misconceptions and misstatements he might have been seduced, in order to cover the consequences of his first blunder; or how much the simplicity of the grand truth which had revealed itself to him, as it were, for a moment in the distance, might have been eventually complicated and disfigured by the vain imaginations of the very mind which had discovered it. The progress of science would, no doubt, at last, have swept away all these useless and encumbering fictions; but that honour would, probably, have been reserved for another than Newton. Committed to the maintenance of his adopted errors, and with his mental vision even unfitted in some measure for the perception of the truth, he might in that case have been the last to take in the full brightness of the day, the breaking of which he had been the first to descry. But by keeping his mind unbiassed, he was eventually enabled to verify all, and more than all, that he had originally suspected. No other speculator had yet followed him in the same path of conjecture; when, a few years after, upon obtaining more correct data, he repeated his calculation, and found it terminate

in the very result he had formerly anticipated. And what a moment of triumph and inconceivable delight must that have been, when he saw at last that the mighty discovery was indeed all his own! It is said, that such was his agitation as he proceeded, and perceived every figure bringing him nearer to the object of his hopes, that he was at last actually unable to continue the operation, and was obliged to request a friend to conclude it for him.

Another very beautiful example of the way in which some of the most valuable truths of philosophy have been suggested, for the first time, by the simplest incidents of common life, is afforded by GALILEO's discovery of what is called the *isochronism* of the pendulum, or the equality of its oscillations in point of time. It was while standing one day in the metropolitan church at Pisa, that his attention was first awakened to this most important fact, by observing the movements of a lamp suspended from the ceiling, which some accident had disturbed and caused to vibrate. Now this, or something of the same kind, was a phenomenon which, of course, had been observed many thousands of times before. But yet nobody had ever viewed it with the philosophic attention with which it was on this occasion examined by Galileo. Or if, as possibly was the case, any one had been half unconsciously struck for a moment by that apparent equability of motion which arrested so forcibly the curiosity of Galileo, the idea had been allowed to escape as soon as it had been caught, as relating to a matter not worth a second thought. The young philosopher of Italy (for he had not then reached his twentieth year) saw at once the important applications which might be made of the thought that had suggested itself to him. He took care, therefore, to ascertain immediately the truth of his conjecture by careful and repeated experiment; and the result was the complete discovery of the principle of

the most perfect measure of time which we yet possess. How striking a lesson is this for us when we discover, or think we discover, any fact in the economy of nature which we have reason to believe has not previously been observed! Let it be at least verified and recorded.



GALILEO.

No truth is altogether barren; and even that which looks at first sight the simplest and most trivial may turn out fruitful in precious results.

'It seems, after it is stated and described to us, to have been an exceedingly obvious thought which struck

Galileo, when, after having ascertained the regular oscillation of the pendulum, he proposed employing it as a measure of time. Some, indeed, may imagine that there was no such extraordinary merit as is generally supposed even in the grand conjecture of Newton, and that it amounted, after all, merely to the application of a law to the movements of the heavenly bodies, which was already known to affect at least every body in the immediate neighbourhood of the earth. But these things are only simple after they are explained. Slight and transparent as we may think the veil to have been which covered the truths alluded to, and others of a similar nature, immediately before they were detected, it is yet an unquestionable fact that this veil had been sufficient to conceal them, for thousands of years, from the observation of all the world. The phenomenon of a heavy body swinging to and fro from a point of suspension had been familiar to every generation from the very earliest times; and yet, although men had long been very desirous of possessing an accurate and convenient measure of time, and had resorted in different countries to a great variety of contrivances to attain that object, nobody before Galileo had thought of effecting it by means of the pendulum. And, in the same manner, with regard to the law of gravitation: the fact of bodies generally having a tendency to fall to the earth must of course have forced itself upon the attention of the very earliest inhabitants of our globe every day and hour of their existence. But yet Newton's application and extension of this law had occurred to nobody, not even to Galileo himself, who had not many years before been engaged in investigating the exact amount of its influence within the field in which alone it had hitherto been supposed to operate. And Newton not only applied the law of gravitation to the heavenly bodies; but, as the principle, when affecting bodies in the neighbourhood of the earth, was that of a force

apparently constant, he had to discover and demonstrate the law of its variation.*

But, perhaps, the most striking illustration we can give of the strange manner in which important truths will sometimes hide themselves for a long while from observation, even after science has approached almost so near as to touch them, is to be found in the history of the different discoveries relating to the mechanical properties of the air. The knowledge of its positive weight, or gravity, is as old as the days of Aristotle. Even its elasticity was well known to the ancients; one of whose philosophers, HERO of Alexandria, had, about a century before the birth of Christ, constructed upon that principle the fountain, or *jet d'eau*, which still goes by his name. The common suction-pump is a still older invention, the effect of which, depending, as it does, entirely on the pressure of the atmosphere, might have suggested the true philosophy of that subject, it may be thought, to some one of its innumerable observers. But, in reality, although all the while the air was known to be really a heavy body, nobody for two thousand years found out the true reason why, on its removal

* "The assumption of an attractive force emanating from the sun," says the writer of the article on Newton in the *Penny Cyclopædia*, "was at this time far from being a novelty; and it had even been asserted by Bouillaud, [in his *Astronomia Philolaica*, published in 1645] that, if such a force really existed, its intensity would vary inversely as the square of the distance from the attracting body; but neither Bouillaud nor those who entertained similar opinions had given any proof, either empirically or otherwise, of what they had asserted; and certainly none appear to have attempted to establish that the forces which retain the planets in their orbs were identical, as to their nature, with that which draws a stone, when let fall, to the surface of the earth. Newton showed that the law of the inverse square of the distance is that which really exists in nature; and, further, that this law was a necessary consequence of the analogy already discovered by Kepler between the periodic times and the mean distances of the planets."

from the barrel of the pump by the elevation of the piston, the water rose into the vacant space. The unlearned multitude attributed the phenomenon to a *suction*, or power of draught, in the pump, and gave it the name of the suction-pump accordingly. They saw a phenomenon which they did not understand, and they called its cause, of which they were ignorant, suction. But the theory of the philosophers was more irrational than that of the multitude; only that, professing to rest upon one of the great laws of nature, it looked somewhat more solemn and imposing. The water rises in the pump, it was said, upon the removal of the air, because *Nature abhors a vacuum*: and thus the matter rested, as we have said, for nearly twenty centuries,—the alleged abhorrence of Nature for a vacuum never having been established, either by experiment or reasoning, or in any other way, but at the same time being always so gravely propounded as a universal truth, that it never was questioned by anybody. Let us not, however, deride with too much levity these errors and follies of the old interpreters of Nature. We ourselves are only yet casting off the yoke of that ignorance, in the guise of wisdom, under which the men of other times were wont so submissively to bow; and, if not in physics, at least in other departments of knowledge, we are still too much given to accept mere words and phrases, in the place of philosophy. At least let what we are now to relate restrain a little the expression of our contempt for the philosophy of the schoolmen, as to the present matter, and our exultation in a superiority over them which we do not owe to ourselves.

The illustrious Galileo himself, unquestionably one of the greatest men that ever lived, even after advancing to the very confines of all we now know, stopped there, and could find nothing better to offer than the old solution of the difficulty, in a case attended with circumstances which to us would seem to have made the neces-

sity for abandoning it obvious. A pump of more than thirty-two feet in height having chanced to be erected at Florence, while Galileo resided in that city, the philosopher, finding that the water would not rise as usual to its top, set himself immediately to endeavour to account for the unexpected phenomenon; and, after examining the case, came to the conclusion, that Nature certainly abhorred a vacuum, *but for the first two-and-thirty feet only!* It was his pupil TORRICELLI who first demonstrated the true cause of the phenomenon, by a most happily-imagined experiment. The water, rising, as it does, only to a certain height, must, in fact, he remarked, be, not drawn, but pushed up into the barrel of the pump; and it can only be so pushed by the pressure of the atmosphere on the exposed portion of it. The thirty-two feet of water in the body of the pump are merely a counterbalance to a column of air of equal basis, reaching to the top of the atmosphere. But, if so, it then occurred to him, another liquid, heavier or lighter than water, will, in similar circumstances, ascend to a correspondingly less or greater height, a less or greater quantity of it being, of course, required to balance the atmospheric column. Mercury, for example, is about thirteen times and a-half as heavy as water; it ought to mount, therefore, only to the height of about twenty-eight inches, instead of thirty-two feet. So, taking a glass tube of about three feet in length, and hermetically sealed (that is, made air-tight) at one end, he first filled it completely with mercury, and then closing it with his finger reversed it, and plunged it into a basin of the same liquid metal; when, withdrawing his finger, he had the gratification of seeing the liquid in the tube, now forming one body with that in the basin, descend, until, exactly as he had anticipated, there remained suspended a column of twenty-eight inches only. Well, by this experiment, in every way a most ingenious and beautiful one, Torricelli had in reality

invented the instrument we now call the Barometer: and yet, strange to say, it was left to another to discover that he had done so. It was the great PASCAL, a man of sublime and universal genius, who, upon hearing of Torricelli's experiment, first made the remark, that the inference which he had deduced from it might, if true, be confirmed beyond the possibility of dispute, by carrying the mercurial tube to a considerable elevation above the earth, when, the atmospheric column being diminished, that of the mercury, which was supposed to be its balance, ought to be shortened likewise in a corresponding proportion. We had thus, therefore, a measure of the weight of the atmosphere in all circumstances, and consequently of the height of any position to which we could carry the instrument. The experiment was performed, and the result was what Pascal had anticipated. In this way, at length, was completed a discovery, the first steps towards which had been made two thousand years before; during the whole of which period the phenomena best fitted to suggest it were matter of daily observation to every one; but which, nevertheless, at last escaped even several of the greatest philosophers who had made the nearest approaches to its development.

To return, however, for a moment to the subject of the happy application to philosophical purposes of common facts. This subject is the more worth our attention, as it opens a field of invention and discovery to which all men have, in one sense, equal access; although it is only the mind which has been rightly prepared, by previous knowledge and reflection, that is in a condition to profit by the opportunity. Another example which may be given is that of the discovery of the mode of engraving called Mezzotinto, if we are to accept the account which ascribes it to the famous PRINCE RUPERT. It is said to have been suggested to him by his observing a soldier one morning rubbing off from the barrel of his musket the rust which it had contracted from being

exposed to the night dew. The Prince perceived, on examination, that the dew had left on the surface of the steel a congeries of very minute holes, so as to form the resemblance of a dark engraving, parts of which had been here and there already rubbed away by the soldier. He immediately conceived the idea that it would be practicable to find a way of covering a plate of copper in the same manner with little holes, which being inked and laid upon paper, would undoubtedly produce a black impression; while, by cutting or scraping away, in different degrees, such parts of the surface as might be required, the paper would be left white wherever there were no holes. Pursuing this thought, he at last, after a variety of experiments, invented a species of steel roller, covered with points, or salient teeth, which, being pressed against the copper-plate, indented it in the manner he wished; and then the roughness thus occasioned had only to be scraped down, where necessary, in order to produce any gradation of shade that might be desired.*

The celebrated modern invention of the Balloon is said to have had an origin still more simple. According to some authorities, the idea was first suggested to STEPHEN MONTGOLFIER, one of the two brothers to whom we owe the contrivance, by the waving of a linen shirt, which was hanging before the fire, in the warm and ascending air. Others tell us, that it was his brother Joseph who first thought of it, on perceiving the smoke ascending his chimney one day, during the memorable siege of Gibraltar, as he was sitting alone, and musing on the possibility of penetrating into the place, to

* This is the account given by Vertue the engraver. But others maintain that mezzotinto scraping was the invention of Lieut.-Col. de Siegen; that he thus engraved the portrait of the Landgravine of Hesse, in 1643; and that Prince Rupert learnt the art of him, and carried it into England, where he much improved it. See Heinecken, *Idée des Estampes*, p. 208.

which his attention had been called at the moment by a picture of it, on which he had accidentally cast his eyes. It is known, however, that the two brothers, who were paper-makers, and as such conversant with an apparently convenient material for their proposed experiment, had, before this, studied and made themselves familiar with Priestley's work on the different kinds of air; and it is even said that Stephen had conceived the idea of navigating the heavens, by the employment of a gas lighter than common atmospheric air, on his way home from Montpelier, where he had purchased that book.* Newton, also, is well known to have been indebted for the first hint of certain of his great optical discoveries to the child's amusement of blowing bubbles out of soap; and, as Dr. Pemberton has ingeniously observed, in his account of that great man's philosophy, "it is suitably to this mode of thinking that he has, in his 'Observations on Daniel,' made a very curious as well as useful remark, that our Saviour's precepts were all occasioned by some ordinary circumstance of things then especially before him."

* In point of fact, the first balloon sent up by the Montgolfiers at Annonay, near Lyons, the place where they carried on their paper manufactory, on the 5th of June 1783, was raised simply by means of common air heated. It was not till the 27th of August following that the first balloon filled with hydrogen ascended from the Champs de Mars, Paris. The first attempt, nevertheless, of the Montgolfiers had been with hydrogen, but it proved a failure, as a similar attempt had done in the hands of Cavallo, at London, about the same time, in the year 1782. Long before this the idea of rising into the sky by means of a ball formed of some light substance, and filled with inflammable air (or hydrogen), had occurred to Dr. Black of Edinburgh immediately on reading Mr. Cavendish's announcement of the great levity of that gas, which was published in the *Philosophical Transactions* for 1766. Lord Brougham states (*Lives of Men of Science, First Series*, p. 337) that Black actually showed to a party of his friends the ascent of a bladder filled with inflammable air in that same year.

Such is the way in which out of a very little matter has not unfrequently grown a large produce of philosophy. Originally, all human knowledge was nothing more than the knowledge of a comparatively small number of such simple facts, as those from which Galileo deduced the use of the pendulum for the measurement of time, and Newton the explanation of the system of the heavens. All the rest of our knowledge, and these first rudiments of it also, a succession of individuals have gradually discovered, each his own portion, by their own efforts, and without having any teacher to instruct them. In other words, everything that is actually known has been found out and learned by some person or other, without the aid of an instructor. There is no species of learning, therefore, which even self-education may not overtake; for there is none which it has not actually overtaken. All discoverers (and the whole of human knowledge that has not been divinely revealed is the creation of discovery) have been self-taught at least in regard to that which they discovered. The person who first attempted the representation of sounds by writing must have taught himself his alphabet. This is the first consideration for all those who aspire, in the present day, to be their own instructors in any branch of science or literature. Furnished as society now is, in all its departments, with accommodations in aid of intellectual exertion, such as, in some respects, even the highest station and the greatest wealth in former times could not command, it may be safely asserted, that hardly any unassisted student can have any longer to encounter difficulties equal to those which have been a thousand times already triumphantly overcome. Above all, books, and especially elementary books, have, in our day, multiplied to an extent that puts them within the reach almost of the poorest student; and books, after all, are, at least to the more mature understanding, and in regard to such subjects as

they are fitted to explain, the best teachers. He who can read, and is possessed of a good elementary treatise on the science he wishes to learn, hardly, in truth, needs a master. With only this assistance, and sometimes with hardly this, some of the greatest scholars and philosophers that ever appeared have formed themselves, as the following pages will show. And let him who, smitten by the love of knowledge, may yet conceive himself to be on any account unfortunately circumstanced for the business of mental cultivation, bethink him how often the eager student has made his way through a host of impediments, much more formidable in all probability than any by which he is surrounded. Want of leisure, want of instructors, want of books, poverty, ill health, imprisonment, incongenial or distracting occupations, the force of opposing example, the discouragement of friends or relations, the depressing consideration that the better part of life was already spent and gone,—these have all, separately or in various combinations, exerted their influence either to check the pursuit of knowledge, or to prevent the very desire of it from springing up. But they opposed the force of the strong natural passion and upward-tending determination in vain. Here then is enough both of encouragement and of direction for all. To the illustrious vanquishers of fortune, whose triumphs we are about to record, we would point as pioneers and guides for all who, similarly circumstanced, may aspire to follow in the same honourable path. Their lives are lessons that cannot be read without profit. Nor are they lessons for the perusal of one class of society only. All, even those who are seemingly the most happily situated for the cultivation of their minds, may derive a stimulus from such anecdotes. No situation, in truth, is altogether without its unfavourable influences. If there be not poverty to crush the spirit, there may be too much wealth and too much ease to relax and enervate it. He

who is left to educate himself in everything, may have many difficulties to struggle with; but he who is permitted to educate himself in nothing is perhaps still more unfortunate. If one mind be in danger of starving for want of books, another may be surfeited by too many. If a laborious occupation leave to some but little time for study, there are temptations, it should be remembered, attendant upon rank and affluence, which are to the full as hard to escape from as any occupation. Or should there be any one who stands free, or comparatively free, from every kind of impediment to the cultivation of his intellectual faculties, he especially may be expected to feel a peculiar interest in the account of what the love of knowledge has achieved in circumstances so opposite to his own. It can hardly fail to stimulate his own exertions, and to remind him that his acquisitions ought to be in some degree commensurate to his advantages. Finally, for all who love to read of bold and successful adventure, and to follow daring ambition in its career to greatness, it cannot but be interesting to contemplate the exploits of some of the most enterprising spirits of our race,—the adventurers, namely, of the world of intellect, whose ambition, while it has soared as high, and performed feats as brilliant as any other, never excites in us an interest which it is dangerous to indulge, nor holds up to us an example which it would be criminal to follow.

CHAPTER II.

STRENGTH OF THE PASSION FOR KNOWLEDGE.—PYTHAGORAS; ARCHIMEDES; LEIBNITZ; GALILEO; HEYNE.

THE ardour with which knowledge has frequently been pursued amidst all sorts of difficulties and discouragements is the best evidence we can offer of the strength of the passion which has sprung up and lived in circumstances so unfavourable to its growth, and therefore of the exquisite pleasure which its gratification is found to bring with it. If the permanence of any pleasure, indeed, is to be looked upon as one of the elements of its preciousness, there are certainly none but those of virtue and religion that can be compared with the pleasures of intellectual exertion. Nor is successful study without its moments, too, of as keen and overpowering emotion, as any other species of human enjoyment is capable of yielding. We have seen how Newton was affected on approaching the completion of his sublime discovery; when the truth shone full upon him, and not a shade remained to create a doubt that it was indeed the truth which he had found and was looking upon. Every other discoverer, or inventor, or creator of any of the great works of literature or art, has had, doubtless, his moments of similar ecstasy. The ancient Greek philosopher PYTHAGORAS is said to have been the first who found out, or at least demonstrated, the great geometrical truth, that the square described on the hypothenuse, or side opposite to the right angle, of a right-angled triangle is exactly equal in area to the two squares described on the other two sides; and such was his joy, we are told, on the occasion, that he offered up

a hecatomb, or sacrifice of a hundred oxen, to the gods, in testimony of his gratitude and exultation. When ARCHIMEDES, the Sicilian, the most renowned geometer of antiquity, achieved what we may call the completion of the method of ascertaining specific gravities, or the comparative weights of equal bulks of different substances, he is said to have rushed forth naked from the bath in which he chanced to be when the idea struck him, and to have run about in that state through the streets of Syracuse, exclaiming, in his native Greek, *Eureka! Eureka!* (I have found it! I have found it!) No better example can be given than is afforded by this anecdote of the manner in which the most common and apparently insignificant fact will sometimes yield to the contemplation of genius the richest produce of philosophy. It was the simple circumstance of the water chancing to run over the sides of the bath that revealed to him what he sought. His friend and patron Hiero, king of Syracuse, had set him a problem to solve. It was suspected that a crown which Hiero had employed an artist to make for him out of a certain quantity of gold was composed partly of some inferior metal. The weight was the same with that of the gold, but the bulk was apparently too great. The question really was merely to obtain an exact measure of the bulk; for, of course, the bulk of any given weight of pure gold was known, or could easily be ascertained. If the crown could have been melted and the metal reduced to a regular shape, there would have been no difficulty; but it was necessary that its exact bulk should be determined without breaking it up. As soon as Archimedes saw how a portion of the water in the bath was displaced by the immersion of his body, he perceived that he had found what was wanted; the quantity of water, or any other liquid, which the crown similarly immersed should displace would at once give the bulk of the crown. All the rest was matter of the simplest calculation.

Assuming the alloy, when it was found that there was an alloy, to be silver, the exact proportions in which the two metals had been mixed together would be an easy and immediate deduction from the comparison of the bulk of the crown, ascertained in the manner that has been described, with that of the same weight of gold on the one hand and that of the same weight of silver on the other. The discovery consisted solely in the manner of ascertaining the bulk of the crown, or of any other body however irregular in figure. This, indeed, is not the method of finding the specific gravity of bodies that is now commonly employed; the modern method, by means of the contrivance called the hydrostatic balance, is not even founded upon the same principle with that discovered by Archimedes. But it is evident that his would equally answer at least for all such cases as the one which was first solved by it. It was not the specific gravities of gold and silver which Archimedes discovered on this occasion, but only a way of ascertaining the specific gravity of irregularly-shaped bodies. It is said that Hiero, who was himself a man of science, was so much struck with the decisive solution of his problem that he declared he should never from that moment be able to refuse his belief to anything that Archimedes might tell him.

The illustrious LEIBNITZ, when only in his sixteenth year, conceived the brilliant idea of reducing the elements of thought to a species of alphabet, which should consist of the representatives or characters, as it were, of all our simplest ideas, and serve to express distinctly their different combinations, just as the sounds of speech are expressed by the common letters. Without attempting to maintain the practicability of this notion, it is impossible to deny that it evidenced great subtilty and originality of mind in the young metaphysician: and we can well conceive the delight with which such a conception must have been contem-

plated by a spirit like his, ardent in the pursuit both of knowledge and of distinction; and beholding, as it were, in this dazzling speculation a new and untraversed continent of thought in the distance, wherein it might spend its first strength, and rear for itself immortal trophies. In a paper, written many years after, his History (in Latin) of a Universal Language, Leibnitz himself describes to us what he calls the infantine joy which this idea brought with it, when it first suggested itself to him, filling his mind, as it did, with the hope and confused vision of the great discoveries to which it promised to conduct him; and although, in the multiplicity of his subsequent pursuits, he had never been able to accomplish the high enterprise which he had so early planned, he declares that, the deeper he had carried his reflections and inquiries, he had only become the more convinced of its practicability. Such allurement is there even in the veiled countenance of a new truth!

But beyond all, perhaps, that a discoverer ever felt, must have been the surprise and rapture of Galileo, when, having turned for the first time to the heavens the wonderful instrument which his own ingenuity had invented, he beheld that crowd of splendours which had never before revealed themselves to the eye, nor even been dreamed of by the imagination, of man. While Galileo resided at Venice, a report was brought to that city, that a Dutchman had presented to Count Maurice of Nassau an instrument, by means of which distant objects were made to appear as if they were near; and this was all that the rumour stated. But it was enough for Galileo. The philosopher immediately set himself to work to find out by what means the thing must have been effected; and in the course of a few hours satisfied himself that, by a certain arrangement of spherical glasses, he could repeat the new miracle. In the course of two or three days, he presented several telescopes to the

Senate of Venice, accompanied with a memoir on the immense importance of the instrument to science, and especially to astronomy. He afterwards greatly improved his invention; and brought it to such a state of perfection, that he was in a condition to commence, by means of it, the examination of the far-off firmament itself. It was then that, to his unutterable astonishment, he saw, as a celebrated French astronomer has expressed it, "what no mortal before that moment had seen—the surface of the moon, like another earth, ridged by high mountains, and furrowed by deep valleys—Venus, as well as it, presenting phases demonstrative of a spherical form; Jupiter surrounded by four satellites, which accompanied him in his orbit; the milky-way; the nebulæ; finally, the whole heaven sown over with an infinite multitude of stars, too small to be discerned by the naked eye." * Half a century afterwards our own Milton, who had seen Galileo, thus sung some of these new wonders in immortal numbers:—

> "The moon, whose orb,
> Through optic glass, the Tuscan artist views
> At evening from the top of Fesolé,
> Or in Valdarno, to descry new lands,
> Rivers, or mountains, in her spotty globe."

A few days—what days of intoxicating delight they must have been!—were spent by Galileo in rapidly reviewing the successive wonders that presented themselves to him; and then he proceeded to announce his discoveries to the world by the publication of a paper, which he entitled the *Nuncius Sidereus*, or *Herald of the Heavens*, which he continued from time to time, as he found new objects to describe. From this period the examination of the heavens became the sole object of Galileo's thoughts, and the occupation of his life. He wrote, he talked of nothing else.

* Life of Galileo, by Biot, in the *Biographie Universelle*.

Every mind which is yet a stranger to science, is, in some respects, in the same situation with Galileo, before he turned his telescope to the heavens; and such a mind has a world of wonders to learn, many of which are as extraordinary as those which then revealed themselves to the philosopher. It has, in fact, to behold all that he beheld; not certainly, like him, for the first time that any one of the human race had been admitted to that high privilege, but yet for the first time, too, in so far as itself alone is concerned. The thrilling consciousness of discovery was Galileo's alone; the novelty and sublimity of the sight remain the same for all by whom it has been yet unenjoyed. And so it is with every other sort of knowledge. Although it may have been in reality discovered for the first time a thousand years ago, it remains as new a pleasure as if it had only been found out yesterday, for him who has not yet acquired it. Such pleasures, in truth, are the only ones that admit of being indefinitely multiplied. The enjoyments of sense, to say nothing of their comparatively brief endurance, their certainty to pall upon repetition, and the positively injurious and destroying tendency of many of them, are, from the nature of things, necessarily extremely limited in point of number; for the senses themselves are but few, and no one of them has many varieties of enjoyment to communicate. What were even the highest pleasures brought us by the eye, or the ear, apart from that character which they derive from the moral or intellectual associations they awaken? Momentary excitements for the child, but hardly the gratifications even of a moment to the man—as is abundantly evidenced by the case of many a one in whom the mere corporeal organ is as perfect as usual, but who, nevertheless, hardly receives from it any pleasure worth naming, owing to the uncultivated state of those mental faculties, which are truly the great creators and bestowers of human happiness. But when did we hear

of any one who, having fairly commenced the pursuit of literature or science, ever became tired of it; or would not have gladly devoted his whole life to it, if he could? There may be other passions to which men will deliver themselves up, in the first instance, with greater precipitation and impetuosity; there is none, of a merely terrestrial nature, assuredly, which will detain them so long, or eventually absorb their being so entirely, as the passion for knowledge. We have numberless instances of persons, in every rank of life, who, for the sake of gratifying it, have contended with, and overcome, such difficulties and impediments of all sorts as certainly would have worn out the strength of almost any other impulse with which we are acquainted. But this is an impulse which, we may venture to affirm, when once truly awakened, no discouragements that the most unfavourable circumstances have interposed have ever been able effectually to subdue.

The late Professor HEYNE, of Göttingen, was one of the greatest classical scholars of his own or of any age, and during his latter days enjoyed a degree of distinction, both in his own country, and throughout Europe, of which scarcely any contemporary name, in the same department of literature, could boast. Yet he had spent the first thirty-two or thirty-three years of his life, not only in obscurity, but in an almost incessant struggle with the most depressing poverty. He had been born amidst the miseries of the lowest indigence, his father being a poor weaver, with a large family, for whom his best exertions were often unable to provide bread. In an account which he has given of his early life, he himself says, "Want was the earliest companion of my childhood. I well remember the painful impressions made on my mind by witnessing the distress of my mother when without food for her children. How often have I seen her, on a Saturday evening, weeping

and wringing her hands, as she returned home from an unsuccessful effort to sell the goods which the daily and nightly toil of my father had manufactured!" His parents managed, however, to send him to a children's school in the suburbs of the small town of Chemnitz, in Saxony, where they lived; and he soon exhibited an uncommon desire of acquiring information. He made so rapid a progress in the humble branches of knowledge taught in the school, that, before he had completed his tenth year, he was paying a portion of his school fees by teaching a little girl, the daughter of a wealthy neighbour, to read and write. Having learned everything comprised in the usual course of the school, he felt a strong desire to learn Latin. A son of the schoolmaster, who had studied at Leipsic, was willing to teach him at the rate of fourpence a week; but the difficulty of paying so large a fee seemed quite insurmountable. One day he was sent to one of his godfathers, who was a baker in pretty good circumstances, for a loaf. As he went along, he pondered sorrowfully on this great object of his wishes, and entered the shop in tears. The good-tempered baker, on learning the cause of his grief, undertook to pay the required fee for him, at which, Heyne tells us, he was perfectly intoxicated with joy; and as he ran, all ragged and barefoot, through the streets, tossing the loaf in the air, it slipped from his hands and rolled into the gutter. This accident, and a sharp reprimand from his parents, who could ill afford such a loss, brought him to his senses. He continued his attendance for about two years, when his teacher acknowledged that he had taught him all he himself knew. His father now pressed him to adopt some trade, but the boy felt an invincible desire to go on with his literary education; and fortunately his mother, proud of the talents of her son, was not unwilling that, if it were possible, he should be allowed to gratify his own anxious desires,

and continue his studies. He had another godfather, who was a clergyman in the neighbourhood; and this person, upon receiving the most flattering accounts of Heyne from his last master, agreed to be at the expense of sending him to the principal seminary of his native town of Chemnitz. His new patron, however, although a well-endowed churchman, doled out his bounty with most scrupulous parsimony; and Heyne, without the necessary books of his own, was often obliged to borrow those of his companions, and to copy them over for his own use. At last he obtained the situation of tutor to the son of one of the citizens; and this for a short time rendered his condition more comfortable. But the period was come when, if he was to proceed in the career he had chosen, it was necessary for him to enter the university; and he resolved to go to Leipsic. He arrived in that city accordingly with only two florins (about four shillings) in his pocket, and nothing more to depend upon except the small assistance he might receive from his godfather, who had promised to continue his bounty. He had to wait so long, however, for his expected supplies from this source, which came accompanied with much grudging and reproach when they did make their appearance, that, destitute both of money and books, he would have been without bread too, had it not been for the compassion of the maid servant of the house where he lodged. What sustained his courage in these circumstances (we use his own words) was neither ambition nor presumption, nor even the hope of one day taking his place among the learned. The stimulus that incessantly spurred him on was the feeling of the humiliation of his condition—the shame with which he shrunk from the thought of that degradation which the want of a good education would impose upon him—above all, the determined resolution of battling courageously with fortune. He was resolved to try, he says, whether, although she had thrown him

among the dust, he should not be able to rise up by his own efforts. His ardour for study grew the stronger as his difficulties increased. For six months he only allowed himself two nights' sleep in the week; and yet all the while his surly and avaricious godfather scarcely ever wrote to him but to inveigh against his indolence, —often addressing his letters on the outside, "*To Mr. Heyne, Idler, at Leipsic.*"

In the mean time, while his distress was every day becoming more intolerable, he was offered, by one of the professors, the situation of tutor in a family at Magdeburg. Desirable as the appointment would have been in every other respect, it would have removed him from the scene of his studies,—and he declined it. He resolved rather to remain in the midst of all his miseries at Leipsic. He was, however, in a few weeks after, recompensed for this noble sacrifice, by procuring, through the recommendation of the same professor, a situation in the university town similar to the one he had refused. This, of course, relieved for a time his pecuniary wants; but still the ardour with which he pursued his studies continued so great, that it at last brought on a dangerous illness, which obliged him to resign his situation, and very soon completely exhausted his trifling resources; so that on his recovery he found himself as poor and destitute as ever. In this extremity, a copy of Latin verses which he had written having attracted the attention of one of the Saxon ministers, he was induced, by the advice of his friends, to set out for the court at Dresden, where it was expected this high patronage would make his fortune. But he was doomed only to fresh disappointments. After having borrowed money to pay the expenses of his journey, all he obtained from the courtier was a few vague promises, which ended in nothing. He was obliged eventually, after having sold his books, to accept the place of copyist in the library of the Count de Bruhl, at the

miserable annual salary of one hundred crowns (about 17*l.* sterling)—a sum which, even in that cheap country, was scarcely sufficient to keep him from perishing of hunger. However, with his industrious habits, he found time, beside performing the duties of his situation, to do a little work for the booksellers. He first translated a French romance, for which he was paid twenty crowns. For a learned and excellent edition which he prepared of the Latin poet Tibullus, he received, in successive payments, one hundred crowns, with which he discharged the debts he had contracted at Leipsic. In this way he contrived to exist for a few years, all the while studying hard, and thinking himself amply compensated for the hardships of his lot by the opportunities he had of pursuing his favourite researches, in a city so rich in collections of books and antiquities as Dresden. After he had held his situation in the library for above two years, his salary was doubled; but before he derived any benefit from the augmentation, the Seven Years' War had commenced. Saxony was overrun by the forces of Frederick the Great, and Heyne's place, and the library itself to which it was attached, were swept away at the same time. He was obliged to fly from Dresden, and wandered about for a long time without any employment. At last he was received into a family at Wittenberg; but in a short time the progress of the war drove him from this asylum also, and he returned to Dresden, where he still had a few articles of furniture, purchased with the little money he had saved while he held his place in the library. He arrived just in time to witness the bombardment of that capital; in the conflagration of which his furniture perished, as well as some property which he had brought with him from Wittenberg, belonging to a lady, one of the family in whose house he lived, for whom he had formed an attachment during his residence there.

Thus left, both of them, without a shilling, the young persons nevertheless determined to share each other's destiny; civil convulsions nerve or harden people to the encountering of strange risks; and they were accordingly united. By the exertions of some common friends, a retreat was procured for Heyne and his wife in the establishment of a M. de Leoben, where he spent some years, during which his time was chiefly occupied in the management of that gentleman's property. At last, at the general peace in 1763, he returned to Dresden; and here ended his hard fortunes. Some time before his arrival in that city, the Professorship of Eloquence in the University of Göttingen had become vacant, by the death of the celebrated John Mathias Gesner. The chair had been offered, in the first instance, to David Ruhnken, one of the first scholars of the age, who declined, however, to leave the University of Leyden, where he had lately succeeded the eminent Hemsterhuys as Professor of Greek. But fortunately for Heyne, Ruhnken was one of the few to whom his edition of Tibullus, and another of the *Enchiridion* (or Philosophical Manual) of Epictetus, which he had published shortly after, had made his obscure name and great merits known, and with a generous anxiety to befriend one whom he considered to be so deserving, he ventured, of his own accord, to recommend him to the Hanoverian minister, as the fittest person he could mention for the vacant office. Such a testimony from Ruhnken was at once the most honourable and the most efficient patronage Heyne could have had. He was immediately nominated to the Professorship; although he had been as yet so little heard of, that it was with considerable difficulty he was found. He held this appointment for nearly fifty years; in the course of which, as we have already remarked, he may be said, by his successive publications, and the attraction of his lectures,

to have placed himself nearly at the head of the classical scholars of his age; while he was at the same time loved and venerated almost as a father, not only by his numerous pupils, but by all ranks of his fellow-citizens, who, on his death, in 1812, felt that their University and city had lost the man who had been for half a century its chief distinction.

CHAPTER III.

OBSCURE ORIGIN AND HUMBLE STATION:—EPICTETUS; PROTAGORAS; CLEANTHES; HAÜY; WINCKELMAN; ARNIGIO; DUVAL; BANDINELLI; SCALIGER; PROTOGENES; BAUDOUIN; GELLI: METASTASIO; HAYDN; OPIE; PARINI; PRIDEAUX; INIGO JONES; CHIEF JUSTICE SAUNDERS; LINNÆUS; LOMONOSOFF; BEN JONSON; THE MILNERS; JOHN HUNTER.

HEYNE'S first disadvantage, of being born in a sphere of life unfavourable even to the awakening of the passion for knowledge, is one which aspiring minds have often overcome. Not to mention the cases of ÆSOP, PUBLIUS SYRUS, and TERENCE, all of whom were originally slaves, EPICTETUS, the celebrated Stoic philosopher, was born in the same condition, and spent many years of his life in servitude. Having been at last fortunate enough to obtain his freedom, he retired to a small hut; and, when he was barely able to procure the necessaries of life, devoted himself to the study of philosophy. We have seen that the principal record of the doctrines of this philosopher was one of the works edited by Heyne, while at Dresden; and he used to relate that his fortitude, amid the difficulties that he had to struggle with at the time, was not a little strengthened and upheld by the precepts of severe virtue and determined endurance which he found in the system of the old Stoic. Epictetus's own conduct was strikingly in conformity with the lessons he taught, at least if we may believe one of the stories which are told of him. It is said, that before he had obtained his liberty, his master, a brutal man, chose one day to amuse himself by twisting the leg of the slave. "You will break it," remarked

Epictetus; and the next moment snap it went. "I told you so," added the philosopher, with all the indifference in the world. He lived at Rome in a house without a door, and with no furniture, except a table, a small bedstead, and a wretched coverlet; and this even at a time when he enjoyed the greatest familiarity with the Emperor Adrian. One day he was extravagant enough to purchase for himself a lamp made of iron; but he was punished for this deviation from his usual habits, by a thief soon after finding his way into the house, and running off with it. "He shall be cheated," said Epictetus, "if he come back to-morrow, for he shall find only an earthen one." PROTAGORAS, the celebrated sophist, had been a common porter before he applied to study. He lived at Abdera, in Thrace, the same town in which resided the famous Democritus, commonly called the Laughing Philosopher; who one day met him carrying into the city a very heavy load of wood on his back, and was a good deal surprised on perceiving that the pieces were piled on one another exactly in the way best adapted to make the burden rest easily on the shoulders. In order to discover whether this geometrical arrangement was the effect of skill or chance, he requested the young man to unbind the load, and make it up again in the same manner: this Protagoras immediately did with great dexterity; upon which Democritus, convinced that his talents were of a superior order, admitted him forthwith among his disciples, and spared no pains in instructing him in the different branches both of natural and moral philosophy. And, to mention no more instances, CLEANTHES, another of the Stoics, was brought up to the profession of a pugilist, and used to exhibit himself in that character at the public games; till, longing to study philosophy, he betook himself for that purpose to Athens, where he arrived with only three drachms (about three shillings and sixpence) in his pocket. In these circumstances he was

obliged, for his support, to employ himself in drawing water, carrying burdens, and other such humble and laborious occupations. He contrived, however, to proceed with his studies at the same time, bringing his fee of an obolus, or penny, every day to his master, Zeno, with great punctuality. On the death of Zeno, he succeeded him in his school, but still continued his menial labours as usual. "I draw water," he was wont to say, "and do any other sort of work which presents itself, that I may give myself up to philosophy without being a burthen to any one." He was so poor, indeed, that, the wind having blown aside his mantle one day when he happened to be present at one of the public shows, his fellow-citizens perceived that he had no tunic, or under garment, and gave him one. He was always treated, notwithstanding his poverty, with the greatest respect at Athens.

In modern times we have many examples, also, of persons whom the love of knowledge has found in the lowest obscurity, and who have possessed themselves of the highest acquirements in science or literature, in spite of every disadvantage of birth. Heyne, as we have mentioned, was the son of a poor weaver. So was the Abbé Haüy, who died in Paris in 1822, celebrated for his writings and discoveries in *crystallography*—a science, indeed, of which he may be almost considered as the founder. It is the science which treats of those curious regular figures which so many solid bodies are found to possess in their natural state, or which they may be made to assume artificially, by dissolving or fusing them, and then allowing their particles to return to a state of solidity, which latter process is called their crystallization. Now it happens that the same substance is not found to have always the same figure externally when in a crystallized state, but is susceptible of several different forms, some of which do not appear at first to have any resemblance to each other. All preceding in-

quirers had been very much perplexed by this circumstance, in their attempts to establish a theory of crystallized bodies; and various principles had been successively adopted and rejected as the foundations of a scientific arrangement of them. At length Haüy had his attention directed to the subject, by having accidentally picked up an uncommonly beautiful specimen of calcareous spar, which presented the figure of a six-sided prism, and had been detached from a group of similar crystals. By trying to split this specimen in various directions with the blade of a knife, and dividing it only where he found a natural joint, he at last reduced it to the form of a rhomboid, or oblongated cube, which it retained in spite of all subsequent sections. Now this is exactly the form in which another calcareous spar, called *Iceland Spar*, is commonly found; whence Haüy was led to suspect that, by the application of the process he had employed, all crystallized substances of the same species might be reduced to the same primitive form. This idea he pursued with exceeding ingenuity; till, by means not only of his unparalleled dexterity in the dissection of crystals, but of a most masterly combination of algebraical and geometrical reasoning, he made it highly probable that the principle of his theory is of universal application, and that it is only necessary to strip them of their external coatings to discover the same radical figure in all crystals of the same species.

But, to proceed: the celebrated WINCKELMAN, the distinguished writer on classic antiquities and the fine arts, was the son of a shoemaker. His father, after vainly endeavouring for some time, at the expense of many sacrifices, to give him a learned education, was at last obliged, from age and ill health, to retire to an hospital, where he was, in his turn, supported for several years in part by the hard labours of his son, who, aided by the kindness of his professors, contrived to keep himself at college chiefly by teaching some of his younger or

less advanced fellow-students. BARTHOLOMEW ARNIGIO, an Italian poet of the sixteenth century, of considerable genius and learning, followed his father's trade of a blacksmith till he was eighteen years old, when he began of his own accord to apply to his studies; and by availing himself of the aid sometimes of one friend, and sometimes of another, prepared himself at last for entering the University of Padua. VALENTINE JAMERAY DUVAL, a very able antiquary of the last century, who at the time of his death held the office of keeper of the imperial medals at Vienna, as well as that of one of the preceptors to the prince, afterwards the Emperor Joseph II., was the son of a poor peasant of Champagne, and lost his father when he was ten years of age. He was then taken into the service of a farmer in the village; but, being soon after turned off for some petty fault, he resolved to leave his native place altogether, that he might not be a burthen to his mother. So he set out on his travels, without knowing in what direction he was proceeding, in the beginning of a dreadful winter; and for some time begged in vain even for a crust of bread and shelter against the inclemency of the elements, till, worn out with hunger, fatigue, and a tormenting headache, he was at last taken in by a poor shepherd, who permitted him to lie down in the place where he shut up his sheep. Here he was attacked by small-pox, and lay ill nearly a month; but having at last recovered, chiefly through the kind attentions of the village clergyman, he proceeded on his wanderings a second time, thinking that by getting farther to the east he should be nearer the sun, and therefore suffer less from the cold. Having arrived in this way at the foot of the Vosges mountains, nearly a hundred and fifty miles from his native village, he remained there for two years in the service of a farmer, who gave him his flocks to keep. Chancing then to make his appearance at the hut of a hermit, the recluse was so much struck by the intelligence of his

answers, that he proposed he should take up his abode with him, and share his labours; an offer which Duval gladly accepted. Here he had an opportunity of reading a few books, chiefly devotional. After some time he was sent with a letter of recommendation from his master to another hermitage, or religious house, near Lunéville, the inmates of which set him to take charge of their little herd of cattle, consisting only of five or six cows, while one of them took the trouble of teaching him to write. He had here also a few books at command, which he perused with great eagerness. He sometimes, too, procured a little money by the produce of his skill and activity in the chase, and this he always bestowed in the purchase of books. One day, while pursuing his occupation, he was lucky enough to find a gold seal, which had been dropt by an English traveller of the name of Forster. Upon this gentleman coming to claim his property, Duval jestingly told him that he should not have the seal, unless he could describe the armorial bearings on it in correct heraldic phrase. Surprised at any appearance of an acquaintance with such subjects in the poor cow-herd. Forster, who was a lawyer, entered into conversation with him, and was so much struck by his information and intelligence, that he both supplied him with a number of books and maps, and instructed him in the manner of studying them. Some time after this, he was found by another stranger sitting at the foot of a tree, and apparently absorbed in the contemplation of a map which lay before him. Upon being asked what he was about, he replied that he was studying geography. "And whereabouts in the study may you be at present?" inquired the stranger. "I am seeking the way to Quebec," answered Duval. "To Quebec? What should you want there?" "I wish to go to continue my studies at the university of that city." The stranger belonged to the establishment of the young princes of Lorraine, who, returning from the chase,

came up with their suite at the moment; and the result was, that, after putting a great many questions to Duval, they were so delighted with the vivacity of his replies, that they proposed to send him immediately to a Jesuits' college in the neighbourhood. Here he continued for some time, until he was at last taken by his patron, the Duke of Lorraine, afterwards the Emperor Francis I., to Paris, where he speedily distinguished himself, and eventually acquired a high place among the literary men of the day. He never forgot, however, either his early benefactors, or that simplicity of character and manners which the humble nature of his origin and first fortunes had given him. It is gratifying indeed to have to tell, that even after he had become a courtier, and was living in intimate familiarity with the emperor, he took a journey to his native village, purchased the cottage in which his father had lived, and erected on its site, at his own expense, a commodious dwelling-house for the parish schoolmaster. He always kept up a correspondence, too, with the good hermits at Lunéville; and, in particular, on paying a visit to Brother Marin, who had taught him writing, and not finding his hut so comfortable as he could have wished, left with him a sum of money to rebuild it. Duval died in 1775 at the age of eighty.

Men are proud, and it is very intelligible why they should be so, of an illustrious ancestry; but to those who have achieved their own advancement in the face of disadvantages such as the individuals we have named, and many others, have had to struggle with, the obscurity of their origin is their most honourable distinction. Nothing, therefore, can be weaker, or more absurd, than the vanity which has led even some distinguished men, of humble, or at least not high birth, to attempt to conceal their real extraction from the world, by the most unfounded, and sometimes ridiculous fictions. BANDINELLI, the Italian sculptor, was the son

of a goldsmith, and the grandson of a common coalman; but having in the course of his life acquired great wealth, and having been created by the Emperor Charles V. a knight of the order of St. James, he is said to have repeatedly changed his name, in order to hide his parentage, and to have fixed at last upon that by which he is generally known, in order that he might appear to have sprung from the noble family of the Bandinelli of Sienna. A similar anxiety to secure for himself the reputation of noble descent is also recorded to have been one of the foibles of the celebrated Spanish dramatist Lope de Vega. But, perhaps, the most extravagant pretensions of this kind that were ever brought forward, were those advanced by the famous Julius Cæsar Scaliger, one of the greatest scholars and critics of the sixteenth century. This eminent person actually took the trouble of composing an elaborate memoir of his own life, in which he pretended to be the last surviving descendant of the princely house of La Scala, of Verona, and consequently the lineal heir of that sovereignty, which, having been some time before conquered by the Venetians, had been incorporated by them with their own territory. In order to support this story, he went the length of inventing a series of adventures, which he said had befallen him, giving out that, having been preserved by his mother from the general persecution of his race, he had, after being carefully educated, been presented at the court of the Emperor Maximilian, who made him one of his pages. He added that he subsequently distinguished himself greatly; first in the wars of Italy, and then, in the service of France, in Piedmont: till, after passing through a succession of other fortunes, which we cannot afford space to relate, he was induced, by the solicitations of La Rovère, Bishop of Agen, to accompany that prelate to his episcopal seat, and thus at last to terminate his vain endeavours

to recover his lost principality. Now the truth is, as has been since abundantly proved, that Scaliger's real name was Bordoni; that he was in all probability the son of a miniature painter who resided at Padua; and that he never even assumed the name of Scaliger till he was pretty far advanced in life, having borne it only in conjunction with his own in his forty-fourth year, when he obtained letters of naturalization in France, which are still extant. Even at this time it would appear that the fable of his descent from the house of Verona, if it had entered his head at all, had certainly not been conceived in anything like the form which he afterwards gave it. It was, at least in all its wilder improbabilities, the romance of his old age. He persisted in it, however, as long as he lived, and left it as a legacy to his son, the learned Joseph Justus Scaliger, who, with an excess of filial observance, both maintained its truth as obstinately as his father had done, and augmented it by many additional fictions of his own invention.

It is a wiser and nobler spirit which, without despising such distinctions where they really exist, considers it more honourable to have achieved fame and eminence without the advantage of high birth than with their assistance; and does not disdain, therefore, where they have not been possessed, to find its best triumph in their absence. Such was the feeling in which the old Greek painter PROTOGENES acted, who, having passed the earlier years of his life in such obscurity and poverty, that he was obliged to spend the greater part of his time in merely painting the coarse ornaments on the prows of ships, was so far from showing himself ashamed of his humble origin, when he rose at last to fame and more honourable as well as lucrative employment, that he was wont to introduce representations of the different parts of ships round his pictures, as symbols and memo-

rials of his old occupation. BENEDICT BAUDOUIN (or BALDUINUS), a learned Frenchman of the sixteenth century, went still farther than this. His father had been a shoemaker, and he had himself worked for some time at the same profession—circumstances which he was so little anxious to have forgotten, that, many years after, he wrote and published a very elaborate work on the Shoemaking of the Ancients, in which we find the history of that craft traced, with a profusion of erudition, up to the time of Adam himself. But, perhaps, the most extraordinary example on record of indifference to such matters, is that afforded by the conduct of the Italian writer GIAMBATISTA GELLI, who, even after he had obtained so much distinction by his writings as to have been elected to the high dignity of Consul of the Florentine Academy, and appointed by the grand-duke to deliver a course of lectures on Dante, still continued to work at his original profession of a tailor, which he had inherited from his father. He alludes to the circumstance, with much modesty and even dignity, in the introductory oration of his course delivered before the Academy, which has been published.

It would be easy to continue to a much greater length our enumeration of individuals who, smitten by the love of knowledge, have nobly surmounted the impediments thrown in the way of its acquisition by a humble birth or early indigence. Many of the most remarkable of these cases we shall have an opportunity of introducing under other heads of our subject; at present we shall merely mention a few of those which we may not afterwards find so convenient an occasion of noticing. The celebrated Italian poet METASTASIO was the son of a common mechanic, and used when a little boy to sing his extemporaneous verses about the streets. The father of HAYDN, the great musical composer, was a wheelwright, and filled also the humble

occupation of sexton, while his mother was at the same time a servant in the establishment of a neighbouring nobleman. The father of our own painter, OPIE, was a working carpenter in Cornwall. The following is the account that Dr. Wolcot, better known by his assumed name of Peter Pindar, gives us, in his peculiar style, of the circumstances in which he discovered the uneducated artist:—"Being on a visit to a relation in Cornwall, I saw either the drawing or print of a farm-yard in the parlour, and, after looking at it slightly, remarked that it was a busy scene, but ill executed. This point was immediately contested by a she-cousin, who observed that it was greatly admired by many, and particularly by John Opie, a lad of great genius. Having learned the place of the artist's abode, I immediately sallied forth, and found him at the bottom of a sawpit, cutting wood by moving the lower part of an instrument which was regulated above by another person. Having inquired in the dialect of the country if he could paint? 'Can you *paient?*'—I was instantly answered from below in a similar accent and language, that he could '*paient* Queen Charlotte and Duke William,' (William Duke of Cumberland,) 'and Mrs. Somebody's cot.' A specimen was immediately shown me, which was rude, incorrect, and incomplete. But when I learned that he was such an enthusiast in his art, that he got up by three o'clock of a summer's morning to draw with chalk and charcoal, I instantly conceived that he must possess all that zeal necessary for obtaining eminence. A gleam of hope then darted through my bosom; and I felt it possible to raise the price of his labours from eightpence or a shilling to a guinea a-day. Actuated by this motive, I instantly presented him with pencils, colours, and canvas, to which I added a few instructions." After some time, the Doctor adds, his pupil became so celebrated in the neighbourhood, that he

obtained as much employment as he could undertake in painting heads at half-a-guinea each, and at last resolved to raise his price to a guinea. He afterwards came to London, and attained great eminence as a portrait painter: upon which he was admitted as an Associate of the Royal Academy, and was eventually elected Professor of Painting in that institution. "Born in a rank of life in which the road to eminence is rendered infinitely difficult," says another Academician, speaking of Opie, "unassisted by partial patronage, scorning with virtuous pride all slavery and dependence, he trusted alone for his reward to the force of his natural powers, and to well-directed and unremitting study. The toils and difficulties of his profession were by him considered as matter of honourable and delightful contest; and it might be said of him, that he did not so much paint to live, as live to paint."

The parents of SEBASTIAN CASTALIO, the elegant Latin translator of the Bible, were poor peasants, who lived among the mountains in Dauphiny. The Abbé HAUTEFEUILLE, who distinguished himself in the seventeenth century by his inventions in clock and watch making, was the son of a baker. PARINI, the modern Italian satiric poet, was the son of a peasant, who died when he was in his boyhood, and left him to be the only support of his widowed mother; while, to add to his difficulties, he was attacked in his nineteenth year by a paralysis, which rendered him a cripple for life. The parents of Dr. JOHN PRIDEAUX, who afterwards rose to be Bishop of Worcester, were in such poor circumstances, that they were with difficulty able to keep him at school till he had learned to read and write; and he obtained the rest of his education by walking on foot to Oxford, and getting employed in the first instance as assistant in the kitchen of Exeter College, in which society he remained till he gradually made his way to a fellowship. The father of INIGO JONES,

the great architect, who built the Banqueting-House at Whitehall, and many other well-known edifices, was a cloth-worker; and he himself was also destined



INIGO JONES.

originally for a mechanical employment. Sir EDMUND SAUNDERS, Chief Justice of the Court of King's Bench in the reign of Charles II., was in early life an errand-boy at the inns of Court, and gradually acquired the elements of his knowledge of the law by being employed to copy precedents. LINNÆUS, the founder of the science of Botany, although the son of the clergyman of a small village in Sweden, was for some time apprenticed to a shoemaker; and was only rescued from his humble employment by accidentally meeting one day a physician named Rothman, who, having entered into conversation with him, was so much struck with his intelligence, that he sent him to the university. The father of MICHAEL LOMONOSOFF, one of the most celebrated Russian poets of the last century, who eventually attained the highest literary dignities in his own country, was only a simple fisherman. Young Lomonosoff had great difficulty in acquiring as much

education as enabled him to read and write; and it was only by running away from his father's house, and taking refuge in a monastery at Moscow, that he found means to obtain an acquaintance with the higher branches of literature. The famous BEN JONSON worked for some time as a bricklayer or mason; "and let not them blush," says Fuller, speaking of this circumstance in his 'English Worthies,' with his usual amusing, but often also expressive, quaintness, "let not them blush that have, but those that have not, a lawful calling. He helped in the building of the new structure of Lincoln's Inn, when, having a trowel in his hand, he had a book in his pocket."

PETER RAMUS (or, in the original French form of the name, Pierre de la Ramée), one of the most intrepid thinkers of the sixteenth century, and especially famous in the history of philosophy for the novelty and audacity of his logical speculations, began his life, which was afterwards so distinguished, in the humble capacity of a shepherd boy, and was only at last, after a succession of efforts and disappointments, enabled to become a student at the College of Navarre, in the University of Paris, by hiring himself at the same time as a valet. When he had spent his day, one of his biographers tells us, in attendance on his master, following somewhat the example of the old Greek philosopher Cleanthes, he made such good use of his oil and his lamp in the night that he very soon acquired as much of the light of learning as procured him his degree of Master of Arts. "I confess," he says himself in one of his tracts, "that I have been tossed all my life on waves of sorrow. Scarcely was I out of the cradle when I had to begin the struggle, assailed at once by two contending calamities (he means, apparently, poverty and exile, or possibly, it may be, ill health); when I was become a young man, with fortune cross and fighting against me in every way,

I resorted to Paris to obtain for myself a liberal education, and was twice compelled to leave by the violence of the time, twice returned when the tempest somewhat abated, and ever felt the love of learning burn the stronger within me the greater the opposition with which it had to contend." At last he fought his way so successfully through all obstacles that in the year 1551, while he was still in early manhood (for he was born in 1515), he was, by the favour of the Cardinal de Lorraine, appointed Professor of Eloquence and Philosophy in the College de France, a new royal chair established for his behalf. In a remarkable address which he delivered on entering upon this office, before a throng, it is said, of some two thousand eager listeners, he thus manfully referred to his early difficulties: —"It has been cast in my teeth that my father was a charcoal-vendor. True it is, that my grandfather—of one of the first families about Liège—was compelled to take refuge in the Vermandois, when Charles of Burgundy committed his native city to the flames, and that poverty drove him to deal in charcoal, and my father to stand behind the plough. I myself was in yet harder straits than either. And hence it is that some ill-conditioned Dives, whose father and fatherland nobody has ever heard of, has cast censure on the poverty of my highborn ancestry. To this I reply, that I am a Christian, and so have never considered poverty a reproach. . . . . Through stress of fortune, I passed many years of my life in lowly servitude. Nevertheless, my mind was ever free, was never despondent or cast down. Therefore, O Lord God Almighty, who out of stones couldest raise up children unto Abraham, raise up, in this charcoal-vendor's grandson, this labourer's son, not great wealth or fortune—for these I need but little to get me the tools of my craft, pen, ink, and paper,—but rather vouchsafe to him, unto his life's end, a right mind,

and a diligent industry which shall never wax faint." *

The celebrated Danish astronomer, LONGOMONTANUS, was the son of a labourer, and, while attending the academical lectures at Wyburg through the day, was obliged to work for his support during a part of the night. The elder DAVID PAREUS, the eminent German Protestant divine, who was afterwards Professor of Theology at Heidelberg, was placed in his youth as an apprentice, first with an apothecary, and then with a shoemaker. HANS (or *John*) SACHS, the most famous of the old German Meistersingers, or Burgher poets, of the sixteenth century, was the son of a tailor, and served an apprenticeship himself, first to a shoemaker, and afterwards to a weaver, at which last trade, indeed, he continued to work during the rest of his life. JOHN FOLCZ, another old German poet, was a barber. LUCAS CORNELISZ, a Dutch painter of the sixteenth century, who visited England during the reign of Henry VIII., and was patronised by that monarch, was obliged, while in his own country, in order to support his large family, to betake himself to the profession of a cook. Dr. ISAAC MADDOX, who, in the reign of George II., became bishop, first of St. Asaph, and then of Worcester, and who is well known by his work in defence of the doctrine and discipline of the Church of England, lost both his parents, who belonged to a very humble rank of life, at an early age, and was in the very first instance, placed by his friends with a pastry-cook. The late Dr. ISAAC MILNER, Dean of Carlisle, and President of Queen's College, and Lucasian Professor of the

* We avail ourselves (with the change of two or three words) of the translation of this passage from the original Latin given in an interesting article in the *Saturday Review* of 19th July 1856 on a new life of Ramus just published at Paris;—"Ramus, Sa Vie, ses Ecrits, et ses Opinions; par Charles Waddington, Professeur Agrégé de Philosophie à la Faculté des Lettres de Paris," &c.

Mathematics,' at Cambridge, who held a distinguished place among the scientific men of his day, was bred a woollen-weaver,—as was also his younger brother JOSEPH, well known for his "History of the Church."* So was the late Dr. JOSEPH WHITE, Professor of Arabic at Oxford. CASSERIO, a well-known Italian anatomist, was initiated in the elements of medical science by a surgeon of Padua, with whom he had lived originally as a domestic servant. JOHN CHRISTIAN THEDEN, who rose to be chief surgeon to the Prussian army under Frederick II., had in his youth been apprenticed to a tailor.

The celebrated JOHN HUNTER, one of the greatest anatomists that ever lived, scarcely received any education whatever until he was twenty years old. He was born in the year 1728, in Lanarkshire; and being the youngest of a family of ten, and the child of his father's old age, was brought up with much foolish indulgence. When he was only ten years old his father died; and under the charge of his mother it is probable that he was left to act as he chose, with still less restraint than before. Such was his aversion at this time to anything like regular application, that it was with no small difficulty, we are told, he had been taught even the elements of reading and writing; while an attempt that was made to give him some knowledge of Latin—according to the plan of education then almost universally followed in regard to the sons of even the smallest landed proprietors in Scotland—had, after a short space, to be abandoned altogether. Thus he grew up, spending his time merely in country amusements, and for many years without even thinking, as it

* The Life of Joseph Milner, who died in 1797, was written by his brother Isaac, and is a very popular piece of biography; there is also an able Life of the Dean, who survived till 1820, by his niece, Mary Milner, which was first published in 1842, and a second time, somewhat abridged, in 1844.

would appear, of any profession by which he might earn a livelihood. It was, however, found necessary at last that something should be determined upon in regard to this point; for the family estate, such as it was, had gone to his eldest brother, and the father had made no provision for maintaining John any longer in idleness. So, destitute as he was of all literary acquirements, there was no other resource for him except some business that would give employment to his hands rather than his head; and, one of his sisters having married a cabinet-maker, or carpenter, in Glasgow, it was resolved to bind him apprentice to his brother-in-law. With this person, accordingly, he continued for some time, learning to make chairs and tables; and this probably might have been, for life, the employment of the genius that afterwards distinguished itself so greatly in one of the highest walks of scientific discovery, but for circumstances which, at the time when they occurred, were doubtless deemed unfortunate. His master failed, and John was left without any obvious means of pursuing even the humble line of life in which he had set out. He was at this time in the twentieth year of his age. His elder brother, William, afterwards the celebrated Dr. Hunter, had very recently settled as a medical practitioner in London; but had already begun to distinguish himself as a lecturer and anatomical demonstrator. To him John determined to address himself. The rumour of the one brother's success and growing reputation had probably, even before this time, awakened something of ambition in the other to escape from the obscure lot to which he seemed doomed. John now wrote to his brother, offering him his services as an assistant in his dissecting room, and intimating, that if this proposal should not be accepted, he meant to enlist in the army. Fortunately for science, his letter brought a favourable answer. On his brother's invitation he

set out for the metropolis in company with a friend of the family, the two pursuing their journey, as was then the custom, on horseback. He was now put to work in the manner in which he had requested to be employed. His brother, we are informed by Sir Everard Home, his earliest biographer, gave him an arm to dissect, so as to display the muscles, with directions how it should be done; and the performance of the pupil, even in this his commencing essay, greatly surprised his instructor. The doctor then put into his hands another arm, in which all the arteries were injected, and these, as well as the muscles, were to be exposed and preserved. So well satisfied was Dr. Hunter with his brother's performance of this task, that he did not hesitate to assure him he would in time become an excellent anatomist, and would not want employment. Perhaps, although we do not find it so stated by any of his biographers, he may have felt an advantage, in making these preparations, in the habits of manual dexterity acquired during his apprenticeship to his first business.

So rapid, at all events, was the progress which he made in the study of anatomy, that he had not been a year in London when he was considered by his brother as qualified to teach others, and was attended accordingly by a class of his own. His talents, and the patronage of his brother together, brought him now every day more and more into notice. It does not belong to our purpose to trace the progress of his success after this point. We may merely remark, that long before his death he had placed himself, by universal acknowledgment, at the head of living anatomists; and was regarded, indeed, as having done more for surgery and physiology than any other investigator of these branches of science that had ever existed.

The important discoveries, and peculiar and most original views, by which John Hunter succeeded in

throwing so much new light upon the subject of the functions of animal life, were derived, as is well known, principally from the extraordinary zeal, patience, and ingenuity, with which he pursued the study of comparative anatomy, or the examination of the structure of the inferior animals as compared with that of man. To this study he devoted his time, his labour, and it may be said, his fortune; for nearly every shilling that he could save from his professional gains was expended in collecting those foreign animals, and other rare specimens, by means of which he prosecuted his inquiries. When his income was yet far from being a large one, he purchased a piece of ground at Earl's Court, near the village of Brompton, and built a house on it, to serve as a place of deposit for his collections. The space around it was laid out as a zoological garden for such of his strange animals as he kept alive. Even when most extensively engaged in practice, he used to spend every morning, from sunrise till eight o'clock, in his museum. Yet, in addition to his private practice, and a very long course of lectures which he delivered every winter, he had for many years to perform the laborious duties of surgeon to St. George's Hospital, and deputy surgeon-general to the army,—superintending, at this time also, a school of practical anatomy at his own house. Still he found leisure, in the midst of all these avocations, not only for his experiments upon the animal economy, but for the composition of various works of importance, and for taking an active part both in the deliberations of the Royal Society, of which he had been early elected a Fellow, and in other schemes for the promotion and diffusion of natural knowledge. He was the originator, in particular, of the *Lyceum Medicum Londinense*,—a medical society, comprising many eminent individuals, which met at his lecture rooms, and rose to great reputation. That he might have time for these multiplied objects of attention, he used to

allow himself to sleep only four hours in the night, and an hour after dinner.

One plan which he adopted to procure subjects for his researches in comparative anatomy, was to arrange with the keeper of the wild beasts in the Tower, and the proprietors of the other menageries in town, to have the bodies of such of their animals as died, for which he used to give them other rare animals to exhibit, on condition of also receiving their remains at their death. His friends and former pupils, too, were wont to send him subjects for his favourite investigations from every part of the world. "In this retreat [at Brompton], he had collected," says Sir Everard Home, "many kinds of animals and birds; and it was to him a favourite amusement in his walks to attend to their actions and their habits, and to make them familiar with him. The fiercer animals were those to which he was most partial, and he had several of the bull kind from different parts of the world. Among these was a beautiful small bull he had received from the Queen, with which he used to wrestle in play, and entertain himself with its exertions in its own defence. In one of these conflicts, the bull overpowered him and got him down; and had not one of the servants accidentally come by, and frightened the animal away, this frolic would probably have cost him his life." On another occasion, "two leopards," says the same biographer, "that were kept chained in an out-house, had broken from confinement, and got into the yard among some dogs, which they immediately attacked. The howling thus produced alarmed the whole neighbourhood. Mr. Hunter ran into the yard to see what was the matter, and found one of them getting up the wall to make his escape, the other surrounded by the dogs. He immediately laid hold of them both, and carried them back to their den; but as soon as they were secured, and he had time to reflect upon the risk of his own situation, he

was so much affected that he was in danger of fainting."

Mr. Hunter died, in the sixty-sixth year of his age, in 1793. After his death, his museum was purchased by Parliament for the sum of fifteen thousand pounds; and it is now deposited in the hall belonging to the Royal College of Surgeons, in Lincoln's Inn Fields. Large additions have since been made to the collection; but, as left by Hunter, it contained above ten thousand preparations, arranged so as (in the language of Sir Everard Home) "to expose to view the gradations of nature, from the most simple state in which life is found to exist, up to the most perfect and most complex of the animal creation,—man himself." The extreme beauty of these preparations is striking even to an unlearned eye; and their scientific value is unrivalled. The whole forms certainly one of the most splendid monuments of labour, skill, and munificence, ever raised by an individual.

It is important to remark, that, with all his powers, this wonderful man never entirely overcame the disadvantages entailed upon him by the neglect in which he had been allowed to spend his early years. He used to dwell, we are told, on the advantage which is gained in regard to clearness of conception by the committing of one's ideas to writing,—comparing the process to the taking of stock by a tradesman, without which he cannot know with certainty either what he has or what he wants. Yet he himself continued to the end of his life an awkward, though by no means an unpractised, writer. After coming to London, he entered himself of St. Mary's Hall, Oxford, probably with the view of being able to maintain at least some pretension to scholarship, but it does not appear that he carried his assumption of the academical character much farther. He attained little acquaintance with the literature even of his own profession; and it not unfrequently happened, indeed,

we are told, that upon communicating a supposed discovery of his own to some one of his more erudite friends, he had to suffer the disappointment of learning that the same thing had been already found out by some other well-known anatomist. But he felt his literary deficiencies chiefly as a lecturer, the capacity in which his more regularly-educated brother so greatly excelled. It is asserted by Dr. Adams, who has written a life of John Hunter, that he always used to swallow thirty drops of laudanum before going to lecture. If these were heavy penalties, however, which he had to pay for what was not so much his fault as that of others, the eminence to which he attained in spite of them is only the more demonstrative of his extraordinary natural powers, and his determined perseverance.*

We do not quote these names as those of individuals, the single or chief peculiarity in whose history is, that they commenced life in a low station, and ended it in a high, or a higher one. If it were our object to exemplify either the freaks of fortune in lifting humbly-born men to the upper places of society, or that particular sort of talent or dexterity in men themselves which fits them to battle with, or to overreach, fortune, and in either

* The portrait of Hunter, given in the present volume, was engraved, by permission of the Council of the College of Surgeons, from the original painting, by Sir Joshua Reynolds, in the possession of the College, which is held to be a very happy and characteristic likeness, and certainly bears on it the impress of great vigour and originality of mind. Every eye will acknowledge the justice of the remark made upon it by Lavater: "This man thinks for himself." There is another engraving of it by Holl in the third volume of *The Gallery of Portraits* (1834). But the one which is most prized, and gives the more faithful representation, is that by the eccentric William Sharp, who will be mentioned presently. Sharp is said to have worked for a year or more on this plate. He was as yet, however, little known, and the engraving at first found few purchasers in England; but, having come into great demand on the Continent, it gradually grew to be valued in this country.

way to elevate themselves to conspicuous stations, as it were in spite and mockery of all her endeavours to keep them down—it would be easy to bring together an assemblage of far more extraordinary and surprising instances than any we have yet noticed, of such good luck or persevering and triumphant ambition. But our business is not either with mere luck, or mere ambition, —at least in the worldly acceptation of that term. If some of the individuals we have mentioned have risen to great wealth or high civil dignities, it is not for this that we have mentioned them. We bring them forward to show that neither knowledge, nor any of the advantages which naturally flow from it, are the exclusive inheritance of those who have been enabled to devote themselves entirely to its acquisition from their youth upwards. We shall have occasion to show this still more strikingly, when we come to trace the history of some of those powerful minds, whose very education has been actually their own work,—who, without even the assistance of a master, anyhow obtained, are recorded to have made themselves learned scholars, or able philosophers, or accomplished artists. For all, or nearly all, of the individuals we have hitherto enumerated, many as may have been the difficulties they have had to contend with in the endeavour to procure instruction, have nevertheless obtained and enjoyed at last the advantages of a regular education. Still the love of knowledge, at least, must have sprung up in many of them long before the opportunity of acquiring it had been found; and their merit, and the praise due to them, is, that, surrounded, as they were, by all manner of difficulties and discouragements, they rested not until they had fought their way to the instruction for which they longed. Their example also shows that many of those impediments, which, in ordinary cases, altogether prevent the pursuit of knowledge, are impediments only to the indolent or unaspiring, who make,

in truth, their poverty or their low station bear the blame which ought properly to be laid upon their own irresolution or indifference. It was not wealth or ease which these noble enthusiasts sought; it was the bondage and degradation of ignorance alone from which they panted to emancipate themselves. All they wanted was an opportunity of acquiring that knowledge, which *might* lift them to a higher station in society, but would certainly elevate their moral and intellectual being, and bring them an inexhaustible multitude of gratifications, such as no wealth, no station, no worldly circumstances whatever, could confer. Some of them, as we have remarked, even continued to work at their original employments long after they had obtained that superior education which might have entitled them to aspire to a higher place; and we shall have to quote numerous other instances, in the sequel, of persons who, although possessed of the highest mental cultivation, have not permitted that circumstance to withdraw them even from occupations that are generally supposed to be very uncongenial to literary tastes and habits.

Looking back upon these examples, we may safely affirm that no man was ever induced to engage with any degree of eagerness in the pursuit of knowledge by the mere hope of thereby bettering his worldly circumstances. That may have sometimes been temptation enough to allure an individual to procure for himself a few lessons in arithmetic, or navigation, or any of those kindred branches of education the utility of which is equally obvious; but it demands a much stronger and more deep-seated excitement to sustain the mind in that long and earnest pursuit of knowledge, which alone can ever lead to intellectual acquirements of any lofty order. Such a pursuit will never be entered upon, or at least very far proceeded in, by any one, except him who loves knowledge entirely or chiefly for her own sake. It is to such a person only that we hold up the

examples of Heyne, and Winckelman, and the other illustrious conquerors of fortune whom we have named, as guides and encouragements. To none besides are they fitted to be either the one or the other. With regard to the great mass of mankind, any counsel or exhortation which would attempt to raise them above the rank in which they have been born and reared must, from the nature of things, be totally inoperative. But it is right that the individual who, although poor, and unknown, and uneducated, longs for education as his chief earthly good, and feels within himself the strength and resolution to undergo all things for the sake of obtaining it, should be shown, by the example of those who, under the same impulse, have surmounted difficulties as formidable as his own, that no difficulties, however great, are any reason for despair.

CHAPTER IV.

ARTISTS RISING FROM THE LOWER TO THE HIGHER BRANCHES:—B. CELLINI; Q. MATSYS; IBBETSON; KENT; TOWNE; KIRBY; SCHIAVONI; HOGARTH; SHARP; THEW; CASLON.—LATE LEARNERS:—CROMWELL; SIR W. JONES; CATO THE CENSOR; ALFRED; MOLIERE; VALERIANUS; VONDEL; PITOT; PAUCTON; OGILBY.

THERE is one mode in which ingenious and aspiring workmen have sometimes raised themselves above the trade they were bred up to, which does not imply any violent abandonment of their original occupation, but on the contrary arises naturally out of pursuits into which it has led them. We allude to cases of the mere working mechanic elevating himself into an artist, in a department kindred to that of his first exertions; and of the artist himself making his way from a lower to a higher department of his art. Thus, in Italy especially, it has not been uncommon for working goldsmiths, or those of them at least who have been employed in copying designs in the metal, to carry the study of their profession so far as to attain more or less proficiency in the art of design itself; and some individuals, thus educated, have become eminent painters or sculptors. BENVENUTO CELLINI is one instance, who, while serving an apprenticeship to a goldsmith, acquired a knowledge not only of chasing, but also of drawing, engraving, and statuary; and afterwards became one of the greatest sculptors of his age; and several others might be mentioned.—Workers in gold and silver, however, are not the only sort of smiths who have in this way attained to a proficiency in the fine arts. The old Dutch painter, QUINTIN MATSYS, was originally a blacksmith and farrier,

on which account he is often called *the Blacksmith of Antwerp*, the town where he pursued this humble vocation. Having, when a young man, been attacked by a disorder which left him too much debilitated to return to the heavier work of his trade, which was his only means of support for himself and a widowed mother, he was forced to turn his attention to the fabrication of such light and ornamental articles as it was then fashionable to construct of wrought iron; and he obtained considerable reputation, in particular, by an inclosure and covering of this description, which he made for a well in the neighbourhood of the great church at Antwerp. He began, however, at length, to find even such work as this too laborious; and was in great difficulties as to what he should do, when the thought occurred to him, or rather to one of his friends, that, as he had shown considerable talent for the art of design in many of the ornamental articles he had been in the habit of making, it might be worth his while to try what he could accomplish in a simple style of drawing; for example, in painting a few of those small pictures of saints which were wont to be distributed by the religious orders of the city to the people, on occasion of certain of their solemn processions. The idea was adopted, and Matsys succeeded in his new attempt to the admiration of everybody. From that time painting became his profession, and he devoted himself to it with so much zeal and success, as not only to acquire a great deal of reputation in his own day, but to leave several works which are still held in considerable estimation. Among them is one at Windsor, "The Misers," which has been often engraved, and it deserves its popularity better, perhaps, than it does its name. It consists of two figures eagerly employed in counting money. The extreme satisfaction in the countenances of each of these persons is most happily expressed; but the expression indicates a more genial feeling than belongs to the character of the

"Miser." The probability is, that the picture represents two bankers, or usurers, of Antwerp, who derive that "sunshine of the breast" from a contemplation of their riches—their gold, their bills, and their bonds—of which even virtue itself is hardly more productive than the secure possession of wealth with our ordinary human nature. The accessaries of the picture—the candlestick, the rolls of paper, the parrot—are delineated with a fidelity rarely excelled. At any rate the work has excellence enough to be considered the *chef-d'œuvre* of the artist, and such as might fairly have won him the hand of his mistress—who is said to have accepted the "painter," after having rejected the "blacksmith."

The late JULIUS CÆSAR IBBETSON was originally a ship-painter; but by the cultivation of his talents he became so eminent a painter of landscapes, that Mr. West used to compare him to the Dutch Berghem, one of the greatest artists his country has produced in that department. WILLIAM KENT, another English artist of the earlier part of the last century, who practised both history and portrait painting, but is better known for his architectural designs, and the graceful and picturesque style of ornamental gardening which he was the first to introduce among us, had acquired the rudiments of his art while serving his apprenticeship to a coach-painter. FRANCIS TOWNE, a landscape painter of great taste and unrivalled industry, who acquired a handsome fortune in the exercise of that art, and as a teacher of drawing, commenced his career under similar auspices. JOHN JOSHUA KIRBY, who, about the middle of the last century, distinguished himself by a series of drawings of the monumental and other antiquities of the county of Suffolk, and was elected a member both of the Royal and Antiquarian Societies, was originally a house painter. So was the celebrated Italian painter SCHIAVONI, whose parents were so poor, that, although he early showed a propensity for the art in which he after-

wards so eminently excelled, they were unable to afford him any better initiation into it; but who, even in this humble situation, cultivated his talents with so much success, that he recommended himself by his performances to the notice of the great Titian, and was employed by him to paint the ceilings of the Library of St. Mark. The famous HOGARTH acquired his know-



WILLIAM HOGARTH.

ledge of drawing while serving his apprenticeship to an engraving silversmith, and commenced his professional career by engraving coats of arms and shop-bills. The late WILLIAM SHARP, whose eccentricities are so well known, but who was certainly also one of the ablest engravers England ever produced, was educated only to the subordinate branch of the profession called bright engraving, or that which is occupied with such articles as dog-collars, and door-plates. From this he raised himself chiefly by the print, mentioned in a preceding page, of Reynolds's picture of John Hunter, which thus well repaid the year of hard work he bestowed upon it. ROBERT THEW, another English engraver of eminence, originally employed himself merely on visiting-cards and shop-bills. Finally, to omit other instances for the present, WILLIAM CASLON, the celebrated type-founder, began life only as an engraver of the ornaments on gun-barrels; from which he proceeded, in the first instance,

to attempt cutting letters for the bookbinders. Some of his performances in this line having been accidentally seen by Mr. Bowyer, the printer, that gentleman sought him out; and after forming an acquaintance with him took him one day to a foundry in Bartholomew Close, where, after having shown him something of the nature of the business, he asked him if he thought he could now undertake to cut types himself. Caslon requested a day to consider the matter; and then answered that he thought he could. Upon this, Mr. Bowyer and two of his friends advanced him a small capital; and with no other preparation he set up in his new business. In this he speedily acquired such reputation, that instead of the English printers importing their types any longer from Holland, as had before that time been the custom to a considerable extent, those cast by him were frequently exported to the Continent.

A chief disadvantage which had to be surmounted by some of the individuals we have just mentioned, and others similarly situated, was the time they had lost before commencing the pursuit to which they eventually dedicated themselves. This circumstance involved the necessity of acquiring an acquaintance sometimes even with the most elementary principles of their art at a period of life when their habits were already formed, and a certain degree of aversion contracted for what we may call the discipline of apprenticeship in the rudiments of any art or profession. Considerable as this disadvantage must have been, we see how completely it was overcome by their perseverance and honourable ambition. So, in another field of enterprise, OLIVER CROMWELL, who never fought a battle that he did not win, was forty-two years old before he entered the army; and his contemporary (born, indeed, the same year with himself), the immortal BLAKE, who not only stands in the very front rank of our naval heroes, but may be considered as the founder of the modern system of naval

tactics, and who was the first of our commanders that ventured to attack a battery with ships, was in his fiftieth year when he first went to sea. In the pursuit, too, of literature and science, we have many instances



of persons who, in the same manner, have become schoolboys, as it were, in their manhood or old age; and, undismayed by the reflection that their spring, and sometimes their summer likewise, of life was already spent and gone, have given themselves with as much alacrity of heart to the work of that education of which circumstances, or their own heedlessness, had prevented the earlier commencement, as if they had been yet as much children in years as they were in learning. Life is short, certainly; and a youth lost in idleness makes a fearful subtraction from its scanty sum; but this is the true way, if there be any way, to repair that loss, and to make our few years many.

We do not comprehend, however, among those who have distinguished themselves by acquisitions made late in life all such as may have merely familiarized themselves with a new branch of knowledge after the regular period of education was over. The history of any devotee of learning is the history of a series of acquisitions, which terminates only with his life itself, and which will very often embrace much that may, in one sense, be termed elementary study, even in its latest stages. Thus, the student of languages, for example, if he proposes to survey any considerable portion of his mighty subject, must lay his account with being obliged to learn vocabularies and grammar rules to the end of his days. Our countryman, Sir WILLIAM JONES, who, in addition to great acquirements in various other departments of knowledge, had made himself acquainted with no fewer than twenty-eight different languages, was studying the grammars of several of the oriental dialects up to within a week of his death in 1794, at the age of forty-eight. At an earlier period of his life, when he was in his thirty-third year, he had resolved, as appears from a scheme of study found among his papers, "to learn no more *rudiments* of any kind; but to *perfect* himself in, first, twelve languages, as the *means* of acquiring accurate knowledge of history, arts, and sciences." These were the Greek, Latin, Italian, French, Spanish, Portuguese, Hebrew, Arabic, Persian, Turkish, German, and English. When he was afterwards induced, however, from the situation he held in India, to devote himself more especially to oriental learning, he extended his researches a great way even beyond these ample limits. In addition to the tongues already enumerated, he made himself not only master of Sanscrit, as well as less completely of Hindostanee and Bengalee, but to a considerable extent also of the other Indian dialects, called the Tibetian, the Pâli, the Phalavi, and the Deri; to which are to be added, among the languages which

he describes himself to have studied least perfectly, the Chinese, Russian, Runic, Syriac, Ethiopic, Coptic, Dutch, Swedish, and Welsh.

It is only when an individual commences the study of foreign languages in his maturer years that we are entitled to quote him as an example of the peculiar sort of perseverance and intrepidity we are at present considering. Thus the old Roman, CATO the Censor, in all respects an extraordinary man, showed his force of character very strikingly, by setting himself to learn Greek in his old age. The study of that language was as yet very rare at Rome; and this makes the determination of Cato, and his success, the more remarkable. In so far as his native literature was concerned, Cato was before this one of the most learned of his countrymen; but he certainly had never experienced what it was to study a foreign language till now. Our own ALFRED THE GREAT—one of the most perfect characters in history—affords us a still more illustrious example of what may be done by those who are not only advanced in life before they have an opportunity of acquiring what is commonly called learning, but even by those whose most elementary education has been begun comparatively late. An interesting anecdote is told of Alfred's first acquaintance with books. His mother, it is said, had shown him and his brothers a small volume of Saxon poetry, illuminated, or adorned, in different places, with coloured letters, and other such embellishments, as was then the fashion. Seeing it excite the admiration of the children, she promised she would give it to him who should first learn the verses by heart. Alfred, although the youngest, was the only one of the four, perhaps, who had spirit even to attempt getting possession of the prize on such conditions—at least, it was he who actually won it; for he immediately, we are told, went and procured a teacher, that is, apparently, some one to read the poetry to him till he had learned it, and in this way,

in a very short time, he was enabled to perform the task set him by his mother, and to claim the promised reward. At this time he cannot have been more than four years old; for at that early age he lost his mother. It was not till long afterwards that he found it possible to extend his acquirements beyond the mere elements of book knowledge. The miseries to which his kingdom was for so many years exposed from the invasion of the Danes, and the incessant labours and privations to which he was in consequence compelled to submit, left him no leisure, till he had passed at least the twentieth year of his age, to improve his acquaintance with books; and even after he had regained his throne, and re-established his country in peace and independence, he had nearly as many impediments to contend with from the extreme difficulty of procuring the necessary instructors. Nearly all those possessed of any degree of learning had disappeared, or been destroyed, during the late confusions. He himself states, that when he came to the throne, he knew but few priests in the northern part of the kingdom, and not one to the south of the Thames, who could translate the Latin prayers of the Church service. By searching about, however, in all directions, and sending to foreign countries for what his own could not supply, he at last collected at his court some of the ablest men whom that dark age afforded; and he set himself immediately to profit by their instructions, with a docility and zeal that can never be enough admired. In spite of all his public duties and cares, and a tormenting disease, which scarcely ever left him a moment of rest, it was his custom, we are told, day and night, to employ his whole leisure time either in reading books himself or in having them read to him by others. Still, however, although he used to have such Latin books as he could procure interpreted to him by his learned friends, his native language was long the only one he knew. According to the interesting biography attri-

buted to Bishop Asser, one of his instructors, he had reached his thirty-ninth year before he began to attempt translating anything from the Latin tongue himself. He and Asser, we are informed, were one day conversing together as usual, when, the latter taking occasion to introduce a quotation from a particular author, the king was so much struck with the passage, that he desired it might be immediately inscribed on one of the blank leaves of a small religious manual, which he was wont to carry about with him in his bosom. This became the commencement of a collection of favourite sentences from the Latin writers, which Alfred, ever aspiring after excellence, soon became ambitious to be able to peruse himself; and so proceeded at once to the acquirement of the language in which they were written. In no long time he attained to a great proficiency in his new study, as several translations from Latin authors which he has left behind him sufficiently testify. Among these are a version of Boethius's "Consolations of Philosophy," which he has rendered exceedingly interesting, by the introduction into the original work of many new ideas and illustrations of his own; another of Bede's "Ecclesiastical History of the English;" and another of Orosius's "Ancient History and Geography," in which he inserts a very curious account of a voyage made in that age towards the North Pole by two Norwegians, which he expressly states he had heard from the lips of the navigators themselves.

The celebrated French dramatist, Moliere, could only read and write very indifferently when he was fourteen years of age. It had been intended that he should follow the profession of his father, who was an upholsterer; but upon being taken on one occasion, about the time we have mentioned, by his uncle to the theatre, his passion for literature was so much excited, that he would hear of nothing but going to college, to which he was accordingly soon after sent. Another well-known French

writer, SAINTE PALAYE, the author of the "History of the Troubadours," had, from the delicacy of his health, been so much indulged by his mother, that he had been allowed to pass his fifteenth year before beginning either Greek or Latin; but his progress afterwards was so rapid, that he abundantly made up for the time he had lost. Dr. CARTER, the father of the celebrated Miss Carter, had been originally intended for a grazier, and only began his studies at the age of nineteen or twenty. He eventually, however, became a distinguished scholar; and he was so enthusiastically attached to literature that he gave his daughters too a learned education. Valeriano Bolzani, who lived in the earlier part of the sixteenth century, and is better known by the Latinized name of JOANNES PIERIUS VALERIANUS, (the epithet Piérius having been given him by one of his masters, in allusion to the Greek term *Pierides*, one of the names of the Muses,) was fifteen years old before he began to learn to read; his parents, indeed, having been so poor, that he was obliged to commence life as a domestic servant. He afterwards became one of the most learned and elegant scholars of his time, and wrote many books, several of which are still well known and esteemed, particularly a curious treatise on the misfortunes of literary men, which has been often reprinted; the last edition having been brought out at Geneva, in 1821, under the care of our countryman, Sir Egerton Brydges. Valerianus merits particular commemoration in literary history on another account—for his disinterestedness, namely, in twice refusing a bishopric, when pressed upon his acceptance by his patron, Pope Clement VII., in order that he might devote himself entirely to literature. The famous Dutch poet, JOOST VAN DEN VONDEL, whose works fill nine quarto volumes, commenced learning Latin only in his twenty-sixth year, and Greek not till some years afterwards. Vondel, like many of the other literary men of Holland, had begun life as a com-

mercial man, and originally kept a hosier's shop at Amsterdam; but he gave up the management of his business to his wife when he commenced his career as an author. He died in extreme old age in 1679, having occupied, during a great part of his life, the very highest place in the literature of his country. The French mathematician, HENRY PITOT, the author of several ingenious works, and particularly of a treatise on the management of vessels at sea, which was long adopted by the French Government as the text-book for the instruction of the navy, and, being translated into English, procured the writer the honour of admission into the Royal Society, had reached his twentieth year before he began to pay attention to learning. About this period of his life, when he used to spend his time only in idleness and dissipation, he chanced one day, upon going into a bookseller's shop, to open a volume on geometry, the figures in which attracted his attention, and excited his curiosity so much that he determined to study the work. This was the beginning of his fondness both for mathematics and for reading; and he soon grew so much attached to his new occupation, that he abandoned his old habits entirely; and now spent every hour in study, or in watching the stars, by means of instruments of his own invention, from the top of an old tower in his father's house. This mode of employing his time obtained for him at first, it is related, among his ignorant and astonished neighbours, the reputation of being a magician. He was afterwards sent by his father to complete his studies at Paris, where he was introduced to Réaumur, the celebrated naturalist (whose work on insects is still one of the most philosophical guides to the student of entomology), and the inventor of the thermometer known by his name; and he soon became, under Réaumur's guidance, an adept in the different departments of his favourite science. It is a curious circumstance, however, and shows at once his

ardour in the pursuit of knowledge, and the penalty he was long afterwards obliged to pay for his early negligence, that he actually submitted, when more than fifty years old, to take his first lessons in Latin from his son's tutor, in order to be able to read some mathematical works written in that language, which he wished to consult.

Another French mathematician, the ingenious PAUCTON, whose "Metrology," or treatises on weights and measures, although first published nearly half a century ago, is still considered one of the most valuable extant, had, owing to the poverty of his parents, scarcely received any education at all, till after he had reached his eighteenth year. He was at last noticed by a charitable ecclesiastic, who gave him lessons for about two years; after which he completed his studies at Nantes. Paucton eventually obtained the professorship of mathematics at Strasburg; but his labours here must have been but indifferently recompensed, for when the city was threatened with a blockade by the Austrians, and the magistrates had issued orders that every inhabitant who could not supply himself beforehand with a sufficient store of provisions for the siege, should quit the place, Paucton, being too poor to afford the necessary outlay, was obliged to take his departure with his wife and three children. He was afterwards, however, patronised by the French Government; and had the prospect of passing his latter days in comfortable circumstances, when he died in 1768, at the age of sixty-two.

We shall at present mention only another example, JOHN OGILBY, the well-known translator of Homer, was originally a dancing-master. He had apprenticed himself to that profession on finding himself reduced to depend upon his own resources, by the imprisonment of his father for debt in the King's Bench. Having succeeded in this pursuit, he was very soon able to release his father, which he did, very much to his credit, with

the first money he procured. An accident, however, put an end to his dancing, and he was left again without any permanent means of subsistence. In these circumstances, the first thing he did was to open a small theatre in Dublin; but just when he had fairly established it, and had reason to hope that it would succeed, the rebellion of 1641 broke out, and not only swept away all his little property, but repeatedly put even his life in jeopardy. He at last found his way back to London, in a state of complete destitution: but, although he had never received any regular education, he had before this made a few attempts at verse-making, and in his extremity he bethought him of turning his talent in this way, which certainly was not great, to some account. He immediately commenced his studies, which he was enabled to pursue chiefly, it is said, through the liberal assistance of some members of the university of Cambridge; and although then considerably above forty years of age, he made such progress in Latin that he was soon considered in a condition to undertake a poetical translation of Virgil. This work was published in the year 1650. In a very few years a second edition of it was brought out with great pomp of typography and embellishments. Such was its success that the industrious and enterprising translator actually proceeded, although now in his fifty-fourth year, to commence the study of Greek, in order that he might match his version of the Æneid by others of the Iliad and the Odyssey. In due time both appeared; and Ogilby, who had in the mean while established himself a second time in Dublin in the management of a new theatre, was in the enjoyment of greater prosperity than ever, when, having unfortunately disposed of his Irish property, and returned to take up his residence in London, just before the great fire of 1666, he was left by that dreadful event once more entirely destitute. With unconquerable courage and perseverance, however, he set to work

afresh with his translations and other literary enterprises; and was again so successful as to be eventually enabled to rebuild his house, which had been burned down, and to establish a printing-press; in the employment of which he took every opportunity of indulging that taste for splendid typography to which his first works had owed so much of their success. He was now also appointed cosmographer and geographic printer to Charles II.; and at last, at the age of seventy-six, terminated a life remarkable for its vicissitudes, and not uninstructive as an evidence both of the respectable proficiency in literature which may be acquired by those who begin their education late in life, and also of what may be done by a stout heart and indefatigable activity in repairing the worst injuries of fortune. Ogilby was no great poet, although his translations were very popular when they first appeared; but his Homer, we ought to mention, had the honour of being one of the first books that kindled the young imagination of Pope, who, however, in the preface to his own translation of the Iliad, describes the poetry of his predecessor and early favourite as "too mean for criticism."

CHAPTER V.

EARLY AGE AT WHICH GREATNESS HAS BEEN ACHIEVED:—NEWTON; JAMES GREGORY; TORRICELLI; PASCAL; SIDNEY; OTWAY; COLLINS, &c.; MOZART; RAPHAEL; CORREGGIO; POLITIAN; MIRANDOLA.

CONSIDERABLE as are the disadvantages which those persons have to contend with who begin their acquaintance with books only late in life, it ought not to be forgotten, on the other hand, that all the chances of the race are not against them. The thought of the time they have lost, and are anxious to redeem, is itself a stimulus that will make up for many disadvantages. Then, although they have not yet learned much from books, they have nevertheless learned of necessity a great deal from other sources: and they come to their studies, too, with faculties, which, if not quite so pliant as those of childhood, have much more vigour and comprehension. And, as for the comparative shortness of the space which they may reasonably count upon as being still left to them for their new pursuit, after the years they have already spent, as it were in sleep, that, in a right view of the matter, is really of no consequence at all. Between the ultimate point of discovery, and the place we now occupy on the ascent towards it, the steps are so inconceivably many, that, with regard to us, they may be most truly described as interminable. So far as we have experience, or can conceive, of knowledge, it is an expanse ever widening before us and around us. Its horizon seems not only always as distant as ever, but always becoming more distant the more we strive to approach it. For every one discovery is merely the opening of a road to other discoveries; and the lifting

of us at the same time to a new eminence, from which we see a broader domain than before, both of the known and of the unknown. It is the attainment of a comparatively small portion of knowledge only that even the longest life can compass; and the shortest is sufficient for the attainment of some portion. In other words, the pleasure belonging to the acquisition of knowledge is one which all may enjoy who choose, let the time of life at which they commence the pursuit of it be what it may. In so far, therefore, as we are to be allured by this temptation, it matters not, as we have said, whether we find ourselves in the morning or in the evening of our days, when we would yield ourselves up to its influence. If we were even certain that we had but a few years longer to live, it would still offer, for what leisure we could spare from other duties, the most delightful as well as the most ennobling of all occupations.

This is a consideration for all whose attention may not have been attracted to literature till late in life. But even to him who feels within himself the ambition, and something of the power, of high achievement in the arena of intellect, and only regrets that so many of his years have been lost in other pursuits before he has had any opportunity of turning to this, we would say that the field in which he longs to distinguish himself is still open for his admission, and its best prizes waiting to be won by him, if only his ardour and courage do not fail. Where there is a real superiority of faculty, it is wonderful how much has often been accomplished even in a very few years devotedly given to the pursuit of eminence. Some of the greatest men that ever lived have either died early, or might have done so for their fame. NEWTON himself—but he may be said, here at least, to be only a prodigy for our admiration—had completed many of his grand discoveries, and laid the foundation of all of them, before he had reached his twenty-fifth

year; and, although he lived to become very old, he may be said to have finished all that was brilliant in his career at the early age of forty-five. After this, it has been remarked, he wrote nothing, except some further explanations and developments of what he had previously published. JAMES GREGORY, the celebrated inventor of the reflecting telescope, was suddenly struck blind in his thirty-seventh year while observing the satellites of Jupiter, and died a few days after. TORRICELLI, whose famous discovery of the barometer we have already mentioned, and who had deservedly acquired the reputation of being in every respect one of the greatest natural philosophers of his time after the world had lost the illustrious Galileo, died at the age of thirty-nine. PASCAL, who first showed the true use and value of Torricelli's discovery, and who has ever been accounted, for his eminence both in science and in literature, one of the chief glories of France, as he would have been of any country in which he had appeared, was cut off at the same early age. Nay, in his case, the wonder is greater still; for he passed the last eight years of his life, as is well known, in almost uninterrupted abstinence from his wonted intellectual pursuits; which, under the influence of certain religious views, operating upon a delicate and excitable temperament, and a frame exhausted by long ill-health and hard study, he conceived to be little better than an abuse of his time and faculties—as if it were criminal in man to employ those powers which his Creator has given him in a way so well fitted to purify and elevate his nature, and to fill him with sublimer conceptions, both of the wonderful universe around him, and of the Infinite Mind that formed it. It ought not to be forgotten, however, that it was during this period of depression and seclusion that he wrote and published his celebrated "Provincial Letters," an attack upon the casuistry of the Jesuits, which, strange to say, is a work not only distinguished

by all that is admirable in style and reasoning, but abounding in the most exquisite wit and humour, which the splendid enthusiast intermingles with his dexterous and often eloquent argumentation, apparently with as much light-heartedness, and as natural an ease, as if the flow of his spirits had scarcely yet known what it was to be disturbed either by fear or sorrow. So false a thing, often, is the show of gaiety—or rather so mighty is the power of intellectual occupation to make the heart forget for the time its most prevailing griefs, and to change its deepest gloom to sunshine. Thus, too, it was that our own COWPER owed to his literary efforts almost the only moments of exemption he enjoyed from a depression of spirits very similar, both in its origin and effects, to that under which Pascal laboured: and, while the composition of his great poem, "The Task," and his translations of the Iliad and Odyssey, suspended even for months and years the attacks of the disease, his inimitable "John Gilpin," for a shorter interval, absolutely transformed his melancholy into riotous merriment. Cowper affords us also another example of how much may be done in literature, and in the acquirement of a high name in one of its highest departments, even by the dedication to it of only a comparatively small portion of a lifetime. He had received a regular education, but, after leaving school, threw away the next twenty or thirty years of his life almost in doing nothing. When the first volume of his poems appeared, the author was above fifty years old; and it was after this that all his more celebrated pieces were written—and that, too, although the eighteen years that intervened before his death were, in regard to both his body and mind, little better than "a long disease." Many of our other poets likewise, whose names are imperishable, have had but a brief term of life allowed them in which to achieve their fame. Sir THOMAS WYATT and Lord SURREY, the great refiners of our language in the reign of Henry

VIII., and the first English poets after Chaucer whose works can be said still to survive, died, the former at the age of thirty-eight, and the latter on the scaffold, the last victim of Henry's despotism, at that of thirty-one. The gallant Sir PHILIP SIDNEY, the author of



SIR PHILIP SIDNEY.

various works in prose and verse, but best known by his celebrated pastoral romance, "The Arcadia," fell at the battle of Zutphen, in the Netherlands, in his thirty-second year. FRANCIS BEAUMONT, the dramatic poet, whose works, written in conjunction with Fletcher, form, indeed, the second glory of the English drama, died in the thirtieth year of his age. OTWAY had written his "Orphan" and his "Venice Preserved," as well as nearly all his other pieces, before he had reached the age of thirty-one; and he died in extreme penury, the consequence, in a great measure, of his irregular and dissolute habits, at thirty-four. COLLINS first published his Odes, many of which are among the most exquisite in the language, when only twenty-six, and was but ten

years older when he died. Finally, BURNS died at the age of thirty-seven, and BYRON at that of thirty-six; KEATS at twenty-five, and SHELLEY at twenty-nine. Yet these are all names that will never die.



LORD BYRON.

The great musical composer, MOZART, a wonderful instance of precocity, as well as of surpassing genius, died at the early age of thirty-five, after a career of unrivalled splendour, and the production of a succession of works which have left him almost, if not altogether, without an equal among either his predecessors or those who have come after him. He may be accounted, perhaps, in every way too much of a miracle to be fitly quoted as an object of imitation in any respect to other men. Yet Mozart's devotion to his art, and the indefatigable industry with which, notwithstanding his extraordinary powers, he gave himself to its cultivation, may read an instructive lesson, even to far inferior minds, in illustration of the true and only method for the attainment of excellence. From his childhood, to

the last moment of his life, Mozart was wholly a musician. Even in his earliest years no pastime had ever any interest for him in which music was not introduced. His voluminous productions, to enumerate even the titles of which would occupy no little space, are the best attestation of the unceasing diligence of his maturer years. He used, indeed, to compose with surprising rapidity; but he had none of the carelessness of a rapid composer; for so delicate was his sense of the beautiful, that he was never satisfied with any one of his productions until it had received all the perfection he could give it by the most minute and elaborate correction. Ever striving after higher and higher degrees of excellence, and existing only for his art, he scarcely suffered even the visible approach of death to withdraw him for a moment from his beloved studies. "During the last months of his life," says an anonymous writer,* "though weak in body, he was 'full of the God;' and his application, though indefatigable, could not keep pace with his invention. 'Il Flauto Magico,' 'La Clemenza di Tito,' and a requiem, which he had scarcely time to finish, were among his last efforts. The composition of the requiem, in the decline of his bodily powers, and under great mental excitement, hastened his dissolution; he was seized with repeated fainting fits, brought on by his extreme assiduity in writing, in one of which he expired. As he drew near his end, the grandeur of his ideas became still more obvious; the music of the requiem is truly funereal, a mixture of sublimity and heartfelt entreaty; and it was the excitement produced by the crowd of images which came unsought before his mind that hastened his death. A few hours before that event took place, he is reported to have said, 'Now I begin to see what might be done in music.'"

In the sister art of painting, the great RAPHAEL,

* In Gorton's "Biographical Dictionary."

whose works astonish not more by their excellence than by their number, lived only till he was thirty-seven, dying, like our own Shakespeare, on the anniversary of his birth. His distinguished contemporary, CORREGGIO, was only two or three years older, when, having completed his great work, the "Assumption of the Virgin Mary," which is painted on the ceiling of the dome of the Cathedral at Parma, he suddenly met with his death, under circumstances never to be remembered without sorrow and indignation. So ignorantly, we are told, was his masterly performance appreciated by the canons, his employers, that they not only refused the unfortunate artist the price that had been agreed upon, but, the more to show their contempt for it, paid him the five hundred crowns, which was all they would allow, in copper. Correggio was carrying home this money to his family, who were living in great poverty in a neighbouring village, when, overcome by the heat of the weather and the weight of his load, he was unfortunately tempted to slake his thirst at a spring by the wayside, and the consequence was an inflammatory attack, which soon proved fatal. The destiny of the picture itself had nearly been the same with that of the artist. It is said that the canons were just about to efface it, when the illustrious Titian, happening to pass through Parma, expressed himself with regard to it in terms of such high admiration, as to induce them to forego their intention. "If I were not Titian," said that great painter, imitating Alexander's exclamation to Diogenes, "I should wish to be Correggio." It is Correggio of whom it is told, that, upon seeing one of the works of Raphael, he could only express his feelings by exclaiming, with a noble pride in their common art, "And I also am a painter!"

In the same country, and nearly at the same period with Raphael and Correggio, lived Angelo Politian, and Giovanni Pico, Prince of Mirandola, two of the most

learned men of an age abounding in great scholars; the former of whom died at forty, and the latter at thirty-two. POLITIAN, in particular, has scarcely been excelled, by any scholar of later times, in that combination of profound erudition and elegant taste in which he so conspicuously surpassed all his contemporaries. We may imagine how actively his short life must have been spent, when we reflect on his extensive literary labours, and the variety and amazing exactness of his acquirements. The works he has left us are not so voluminous as those of some other writers; but it would be unfair and absurd to measure the industry of such a mind as his by the mere bulk of its productions. The works, however, which he wrote and published constitute but a small part of the services he rendered to literature. In that age, the recovery of the lost works of the ancients was, in reality, by far the most important occupation to which a scholar could devote himself; and, fortunately, it was also looked upon as the most honourable. It occupied, accordingly, a large portion of the time of Politian and all his distinguished contemporaries. The celebrated Lorenzo de' Medici, the wealthy and munificent patron of all the liberal arts, and himself a scholar and writer of no mean order, was one of the most ardent among the collectors of ancient manuscripts; and Politian was often despatched by him to different parts of Italy, to search for those fast-perishing treasures, and to purchase them for his library. "I wish," said Lorenzo to his friend, as he was proceeding on one of his expeditions for this purpose, "that the diligence of Picus and yourself would afford me such opportunities of purchasing books, that I should be obliged even to pledge my furniture to possess them." It was in the collating and correcting of these manuscripts that the literary labours of Politian principally consisted. His studies were extended to all the various departments of ancient literature. As a clergyman (for he held the

office of a canon in the Metropolitan Church of Florence), he had made himself conversant with Divinity, Hebrew, and the Canon Law; and Civil Jurisprudence is known to have occupied a large share of his attention. He had acquired so perfect a familiarity with the two classic languages, that he wrote both in Latin and Greek almost with the facility of one using his native tongue; and with a purity and elegance that would have done no dishonour, it has been thought, to the most learned of the ancients themselves. The few compositions he has left us, too, in his native Italian, still rank with the most exquisite in that beautiful language. It was, long after the revival of letters, the reproach of some of the greatest scholars of Europe, that they neglected their mother-tongue to such a degree as to be incapable of expressing themselves in it with ordinary gracefulness, or even perspicuity. This was certainly less the case with the learned of Italy than of other countries, owing principally to the mighty influence which had been exerted some time before the era we are speaking of, in refining, fixing, and giving celebrity to the Italian language by the great Dante, and his successors, Petrarch and Boccaccio; and partly, perhaps, to that resemblance to its parent, Latin, which would naturally give to this language a peculiarly classic character in the estimation of the students of ancient learning, and incline them to favour and cherish it accordingly. But in France, more than a century after this, the greatest ignorance of their native language was often exhibited, even by those scholars who wrote most elegantly in that of the Greeks or Romans. Thus, the celebrated Sebastian Castalio, whose Latin version of the Bible has been already mentioned as remarkable for its purity, and whose other works in the same language are all eminently deserving of the same praise, in afterwards translating the Scriptures into French, expressed himself in so vulgar and barbarous a manner, that his

style has been described as no better than the jargon used by the beggars. In Germany, so late as even a century after the time of Castalio, the illustrious Leibnitz composed almost all his works either in Latin or French, the little which he wrote in German being very ill written; and although, in the variety of his schemes, he proposes one for the improvement of that language, he only shows, by the remarks he makes on it, his ignorance of its true character and resources. Our own noble tongue was, even up to a very recent period, scarcely recognised, by many of our most learned scholars, as a suitable vehicle either for elegant literature or philosophy; and that, too, strangely enough, long after it had been adorned by some of the greatest works, both



CHAUCER.

in verse and prose, that any nation has yet had to boast of. The English tongue was both a refined and copious one so early as the time of CHAUCER, who lived in the fourteenth century, and was the contemporary of Petrarch and Boccaccio. In the earlier part of the sixteenth century, as may be seen from the poems of Surrey

and Wyatt, it had attained, in regard to both its words and its idioms, very nearly the form it still has; and the latter part of that century, and the beginning of the following, was the time of its greatest richness and glory, being that in which flourished Spenser, and Bacon, and Shakspeare, and many others whom even the supereminent lustre of their names has not obscured, and in which Jeremy Taylor and Milton were born and educated. Yet, after all these writers had produced their immortal works, we find not only some of our most distinguished scholars continuing to write their native tongue with an awkwardness and inaccuracy that, in a Latin composition, would have been considered disgraceful, but our most polite and popular authors themselves affecting almost universally to despise their mother English as an unformed and barbarous dialect, scarcely to be used except in works of the most ephemeral description, or in addressing the vulgar who understand no other. Thus, to omit many similar evidences of the general state of feeling, Waller, the poet, who died the year before the Revolution, tells us that

> Poets, that lasting marble seek,
> Must carve in Latin or in Greek.

It is delightful to contrast with this discreditable insensibility the enthusiastic admiration which some of our older writers express for this golden growth of our island soil, and best representative and picture of our national manners, intellect, heart, and history. The works of Chaucer, who, Waller informs us,

> His sense can only boast,
> The glory of his numbers lost,

are, in Spenser's estimation, the "well of English undefiled;" and Spenser was one of the most learned men, as well as greatest poets, that ever adorned the literature of any country. So, GEORGE CHAPMAN, one of the poets

of the age of Elizabeth and James, who produced, in the beginning of the seventeenth century, a translation of the Iliad and Odyssey, abounding in passages of great splendour and beauty (and which Pope acknowledges



GEORGE CHAPMAN.

to be animated by "a daring fiery spirit, something," he is pleased to add, "like what one might imagine Homer himself would have writ before he arrived at years of discretion"), exclaims, with exquisite fervour and sweetness of expression, in some verses which he has prefixed to that work:—

And for our tongue, that still is so impaired *
  By travelling linguists, I can prove it clear
That no tongue hath the Muse's utterance heired
  For verse, and that sweet music to the ear
Struck out of rhyme, so naturally as this.

* That is, *disparaged*.

And then he goes on to contrast its variety and sinewy strength with what he deems the comparatively feeble and inexpressive monotony of both the French and Italian. Thus too, Milton, although accomplished in all the learning of Greece and Rome, and, as a writer of Latin, scarcely inferior to any other of his time, had very early the wisdom to discern that, whatever of lasting glory he might achieve must be derived from the works he should produce in what he calls the "mother dialect"—to the cultivation of which his thoughts appear to have been first turned by the example of the success that had attended the like enterprise as pursued by the modern writers of Italy. In a prose tract, which he entitles "Reasons against Prelaty," written many years before he had begun the composition of his Paradise Lost, he announces to us that he had already formed with himself "that resolution which Ariosto followed, against the persuasions of Bembo, to fix all the industry and art he could unite to the adorning of his native tongue;" "that what the greatest and choicest wits," he adds, "of Athens, Rome, or modern Italy, and those Hebrews of old, did for their country, I, in my proportion, with this over and above of being a Christian, might do for mine; not caring to be once named abroad, though perhaps I could attain to that, but content with these British islands as my world." The preference given upon the revival of literature to the Latin language, however, was in part a natural consequence of the paucity of readers in any particular country, and of the extensive diffusion of a language rendered general amongst the reading classes in Western Europe by various causes, among others by its employment everywhere in the services of the church.

We have little written in his native tongue by the Prince of Mirandola; nor, indeed, is it from his published works that we must judge of the extent of those

literary labours which he found means to crowd into the compass of his short life. Yet, if ever there was a heart given up to the love of literature, it was that of Mirandola. He was born in the year 1463; and, if we may trust to the accounts handed down to us by some of his contemporaries, was, even in early youth, such a prodigy of learning as the world has not often seen. It has been affirmed that, by the time he had reached his eighteenth year, he had made himself familiar with no fewer than twenty-two different languages—a story in which, as well as the similar one which certain ancient authors tell us of the famous Mithridates, King of Pontus, who is said to have spoken twenty-four languages fluently, there must be, we can hardly doubt, a very liberal allowance of the fabulous. At the university of Bologna, of which he was entered at the early age of fourteen, Mirandola greatly distinguished himself not only by his uncommon powers of intellect and memory, but by an industry and application almost equally extraordinary. His future ardour and success in the pursuit of literature, up to the period of his death, was altogether in accordance with this early promise:—"I have, by assiduous and intense application," he writes to one of his friends in his twenty-third year, "attained to the knowledge of the Hebrew and Chaldaic languages, and am at present struggling with the difficulties of the Arabic. Such are the achievements which I have ever thought, and still think, worthy the ambition of a nobleman." In a subsequent letter to another correspondent, he says, in reference to the same subject:—"After having studied the Hebrew language day and night for a month, I have directed my whole attention to the Arabic and Chaldee, not doubting that in these I shall make as much progress as I have done in the Hebrew, in which I am already able to compose an epistle, not certainly so as to merit praise, but yet without committing any decided fault. See what can be done by deter-

mination of mind—by mere labour and diligence, even when the strength is but inconsiderable." Mirandola's letters, which, unfortunately, form but a very small collection, are the most interesting productions of his pen we now possess. They breathe in every page both a literary enthusiasm that is quite inspiring, and a serenity and cheerfulness of heart, than which, adorned, as it is, by all the graces of a fervent devotion, and a very high-toned morality, nothing can be more delightful. So precious were they wont to be esteemed, that in some of the earlier editions they are entitled, "The Golden Epistles of the most learned, most noble, and most eloquent of Mortals,"—an inscription which, seeming as it does to a modern taste to partake somewhat of the pompous and extravagant, speaks at least the reverence and affection with which his own contemporaries regarded their admirable author.

In the remaining part of the letter we have last quoted, Mirandola goes on to inform his friend that the circumstance which had excited in him all this zeal to acquire an acquaintance with the Oriental tongues was the having obtained the loan for a short time of certain Chaldee or Hebrew books,—"if," says he, "they are not rather treasures than books,"—which he had every reason to believe were the genuine productions of the Jewish Ezra. The following is another letter relating to this matter, addressed about the same time to his nephew, which forcibly illustrates the literary enthusiasm and devotedness of the writer. "This was the reason," he begins, "why I have not yet answered your letter. Certain Hebrew books have fallen into my hands, on which I have spent the whole week, day and night, with such diligence, that they have almost made me blind. For the person who brought them to me, a Jew, from Sicily, is to leave this in twenty days. Wherefore, until I shall have extricated myself from these manuscripts, do not expect a line from me; for I

cannot leave them for a moment, lest they leave me before I shall have thoroughly perused them. When I shall have made my escape from this engagement, I will overwhelm you with letters, although you know that my mind is exceedingly occupied. But if ever you are to do anything for my sake, endeavour as far as you can to prevent the Prince of Bar from desiring my coming to him; for I should in that case be obliged to interrupt all my studies, to which *you* know how much I am devoted, although I care for nothing beside. But I do not know whether it would vex me most to displease him or myself. Farewell. Fear God, and think of yourself every day as destined to die." We need scarcely add that Mirandola had been, in this instance, deceived by his Hebrew friend, or by his own sanguine temperament; and that the writings in question were, in reality, the production of a much later age than that of their pretended author. The many laborious hours he spent in deciphering them, however, were not probably altogether thrown away; nor was his ardour the less honourable to him, that it met with somewhat less than its expected reward.

It was by such zeal and industry as this, that, cut off as he was in the early summer of his days, Mirandola nevertheless had obtained for himself the universal reputation of being (to borrow the words of one of his contemporaries) not only a most able linguist, but master of all the liberal arts, an admirable poet, and the most learned philosopher and skilful disputant of his age. Even Politian describes him as the Phœnix among all the great geniuses of his time. Most of his printed works (but he left many others in manuscript) relate to theological subjects, and are strongly marked by what would now be called a spirit of mysticism; but they are extolled by those who have studied them as evidencing also abounding erudition and genius. Among them is a Treatise, in twelve books, in refuta-

tion of astrology, which ranks its author as one of the earliest assailants in modern times of the pretensions of that visionary science, which may be said to have retained, for many ages after, nearly the universal faith of Europe.*.

* An interesting account of Mirandola is given by Mr. Hallam in his "Introduction to the Literature of Europe," Vol. I. 206—209 (edit. of 1855).

CHAPTER VI.

SELF-EDUCATED MEN:—T. SIMPSON; EDMUND STONE; JEROME STONE.

Many of the persons who have most remarkably distinguished themselves by their ardour and success in the pursuit of knowledge under adverse circumstances have had no master to instruct them in anything beyond perhaps the mere elements of reading; and have taught themselves, therefore, whatever else they had acquired by their own unaided efforts. To have done this indicates, undoubtedly, a decidedly superior mind; but it is more honourable perhaps to an individual's force of character, and zeal for intellectual improvement, than even to his strength of native talent. For a teacher is really not so indispensable to the work of education as is often supposed. Every branch of human knowledge has in fact been acquired without the assistance of an instructor, if by no one else, at least by him who first found it out. But this sort of self-instruction, demanding, as it does, the application of original and inventive genius, indicates a much more extraordinary degree of mental capacity than is required merely to gain an acquaintance by solitary study with any department of science, or other species of learning, which is to be found already expounded in books. A good elementary book upon any subject is itself a teacher which, to a person of ordinary intelligence, will in many cases render any other unnecessary. In the present age, especially, when such works abound, persons so circumstanced as not to be able easily to obtain the lessons of a living master will find comparatively but little

difficulty in teaching themselves any of the common branches of education, if they will but make the attempt with a true desire and determination to succeed in it, and are not devoid of those powers of attention and perseverance without which there can be no success in anything. The truth is, that even those who enjoy to the greatest extent the advantages of what is called a regular education must be their own instructors as to the greater portion of what they acquire, if they are ever to advance beyond the elements of learning. What they learn at schools and colleges is comparatively of small value, unless their own after-reading and study improve those advantages. Still, however, it must be admitted that it is a great matter for the young student to have the first steps of his progress encouraged and facilitated by being thus led on, as it were, by another holding him by the hand. Compared with him who educates himself from the beginning, such a student may be regarded as entering upon a new country under the conduct of a guide, instead of endeavouring to find his way through it by the aid simply of the road-book. Or rather, he is in the situation of the man who begins the world with a fortune, which, though small, is yet sufficient to set him up in business; while others have to earn even their first shilling by their own ingenuity and industry. Undoubtedly the person thus circumstanced has a somewhat gentler ascent to climb, in the first instance, than his competitors. Still all must owe what they eventually arrive at principally to their own efforts. And, if this be, generally speaking, true of worldly prosperity, it is still more strictly so of the acquisition of intellectual riches; for, in this latter case, what is called good-fortune can be of no avail to anyone. But the examples which we are going to bring forward will show how much every man has it in his own power to do for himself, when he has no other to help him.

The first case we shall detail is that of the well-known

mathematician, THOMAS SIMPSON. He was born in the town of Market-Bosworth, in Leicestershire, in the year 1710. His father was a working stuff-weaver, and was either so poor, or so insensible to the importance of education, that, after keeping his son at school only so long as to enable him to make a very slight progress in reading, he took him home with the view of bringing him up to his own trade. Thomas, however, had already acquired a passionate love of books, and was resolved at all hazards to make himself a scholar. So, beside contriving to teach himself writing, he read with the greatest eagerness every volume that came in his way, or that he could by any means procure; and spent in this manner not only all his leisure, but even occasionally a portion of the time which his father thought he ought to have employed at his work. Instead of giving any encouragement, indeed, to his son's fondness for study, his father did all in his power to cure him of what he deemed so idle and pernicious a propensity; and at last, it is said, after many reprimands, forbade him even to open a book, and insisted upon his confining himself to his loom the whole day. This severity, however, defeated its own object. The young man's repeated attempts to evade the harsh injunction that had been laid upon him led to perpetual quarrels between himself and his father, till he was one day ordered by the latter to leave the house altogether, and to go and seek his fortune where and in whatever way he chose. In this extremity he took refuge in the house of a tailor's widow, who let lodgings in the neighbouring village of Nuneaton, and with whose son, two years older than himself, he had been previously acquainted. Here he contrived to maintain himself for a while by working at his business; and he had a little time to spare besides for his favourite enjoyment of reading, when he could anywhere borrow a book. It chanced, however, that, among other humble travellers who sometimes took up

their abode with the widow, was a pedlar, who followed the profession of an astrologer and fortune-teller, as well as that of an itinerant merchant, and was accounted a man of no little learning by the rustics of those parts. Young Simpson's curiosity had been, some time before this, greatly excited by a remarkable eclipse of the sun, which happened on the 11th of May, 1724; but, if this was the incident that gave his mind its first bias towards the studies in which he afterwards attained so high a distinction, it was to his casual connexion with the astrologer that he owed the rudiments of his scientific knowledge. This personage, with whom he had become very intimate, had, it appears, a few books relating to the mystery he professed, and to the branches of real learning with which it assumed to be connected. Among these was Cocker's "Arithmetic," which had, fortunately, a treatise on Algebra bound up with it—as well as the less useful addition of a work written by Partridge, the famous almanac-maker, on the calculation of nativities. This volume, the pedlar, on setting out upon a tour to Bristol, left in the hands of his young friend. The works of which it was made up were the first of a scientific character that Simpson had had an opportunity of perusing, and they interested him exceedingly—even the treatise on nativities, notwithstanding the absurdities it was filled with, probably not a little exciting his wonder and curiosity, both by its mysterious speculations on the prophetic language of the stars, and such scattered intimations as it afforded in regard to the sublime realities of astronomy. He studied his manuals with such ardour and assiduity, that the pedlar, upon returning from his excursion, was quite confounded at his progress; and looked upon him as so marvellous a genius, that he proceeded forthwith to draw his horoscope (to speak in the language of the art), or, in other words, to calculate the position of the planets on the day he was born, in order that he might ascertain the

exact destiny in store for him. He predicted, that in two years more his miraculous pupil would actually turn out a greater philospher than himself. After this, it cannot surprise us that our young aspirant should give himself to his occult studies with greater devotion than ever; and he very soon, in fact, commenced business as fortune-teller on his own account, and rapidly rose in reputation in that capacity until he became the oracle of the whole neighbourhood. He now gave up working as a weaver; but, to occupy his leisure, he added to his principal profession that of a schoolmaster: so that, his gains being now considerable, he looked upon himself as in the secure high-road to prosperity, and accordingly took to himself a wife in the person of his landlady, the tailor's widow. This was an extraordinary match; for, if the account commonly given of the lady be correct, which makes her die in the year 1782 at the age of one hundred and two, she must have been at the time of this her second marriage about three times as old as her boy-bridegroom. Indeed, as we have already observed, she had (beside a daughter) a son by her former husband some years older than her new one. Nevertheless it is recorded that she presented the latter with two successive additions to the family circle—the juvenile portion of which (excluding the father) now consisted, therefore, of four individuals.

It is necessary to mention these circumstances, in order to give a true picture of Simpson's situation at this period of his life, and of the multiplied difficulties through which he must have fought his way to the eminence he eventually attained. No starting-point for a literary career, one should think, could well be more awkward and hopeless than that of a man who, beside many other disadvantages, had already a family to maintain before he had almost commenced his education, and no other means of doing so except a profession which necessarily excluded him from any association

with the literary world in general much more effectually than if he had eaten the bread of the humblest or most menial industry. It was quite necessary, indeed, that, if he was ever to give himself a chance either of advancement or respectability, he should exchange his trade of a fortune-teller and conjuror for some more reputable vocation, even although it should be, at the same time, a more laborious and less lucrative one. This desirable result, in fact, was at last brought about by one of those accidents which so often in human life bring with them a temporary inconvenience only to turn a man into some path of permanent prosperity, which, but for this compulsion, he would have overlooked or never entered. Among the credulous persons who applied to Simpson to resolve, by his art, their doubts and misgivings touching the distant or the future, was a young girl, whose sweetheart, a sailor, was at the time at sea, and who wished to learn what he was about, either by having him presented to her in a vision, or by a conference with a spirit who might be able to give her the requisite information. It was resolved, therefore, to raise a spirit; and, for this purpose, a confederate of the conjuror was attired in certain terrific habiliments, and concealed among a quantity of straw in the corner of a hay-loft, that he might step forth on due invocation. The sublime, however, had been carried a little too far in the decoration of this figure; for so passing hideous was the apparition, that it actually drove the poor girl almost out of her senses, and sent her off in such a state of illness and distraction that for some time her life was despaired of. The popular feeling was so strongly excited against Simpson by this misadventure, that he was obliged to leave that part of the country altogether; upon which he fled to the town of Derby, about thirty miles distant, determined to have nothing more to do with conjuring. Here he wisely returned to his original occupation of a weaver; and, joining to his labours at

the loom during the day the teaching of a school at night, contrived for some time, though with much difficulty, to earn in this way a scanty subsistence for himself and his family.

It was during his residence at Derby, amid the fatigues of hard and unceasing labour, and the cares and vexations of poverty, that this remarkable man made his most important advances in scientific knowledge. His principal source of information was the "Ladies' Diary," of which he was a regular and attentive reader. It was in this publication that he found the first notices he had met with of that branch of mathematical learning called Fluxions, or the Differential Calculus, the recent discovery of Sir Isaac Newton and Leibnitz; although they scarcely informed him of more than its name, and its immense importance in all the higher investigations of mathematics. But this was enough for such a mind as his. He determined to make himself master of the subject, and could not rest until he had possessed himself of the means of commencing the study of it. The only treatise on fluxions which had at that time appeared in English was a work by an author of the name of Hayes; but it was a dear and somewhat scarce book, so that he found it impossible to procure a copy of it. Fortunately, however, in the year 1730 appeared Edmund Stone's translation of the Marquis de l'Hôpital's French work on the subject. This Simpson borrowed from a friend; and, immediately setting about the study of it with his characteristic ardour, prosecuted it with so much success that he not only made himself in a short time familiar with the new science, but qualified himself to compose a work of his own upon it, which, when published a few years after, turned out to be much more complete and valuable than either that of Hayes or that of Stone. When he had finished this performance, he set out for London, leaving his wife and family in the mean time at Derby. He reached

the capital without even a letter of introduction, and with scarcely anything except his manuscript in his pocket. He was at this time in his twenty-fifth or twenty-sixth year. Having established himself in humble lodgings in the neighbourhood of Spitalfields, he maintained himself in the first instance, as he had been wont to do in the country, by working at his trade during the day, while he employed his evenings in teaching mathematics. His engaging method of instruction, and admirable talent for explaining and simplifying the difficulties of his subject, in a short time procured him notice and friends; and his success was at last so considerable, that he was enabled to bring his family to town. He now also ventured to announce the publication of his "Treatise on Fluxions," by subscription; and it accordingly appeared, in a quarto volume, in the year 1737. From this era, his fortunes and his celebrity went on steadily advancing. But the most remarkable and honourable part of his history is that which recounts his unwearied exertions as a writer on his favourite subjects, after he had acquired a station and a regular income, as well as a degree of distinction, which would have satisfied the ambition and relaxed the industry of many others whose early struggles had been so severe as his. We will just note the dates of his different publications. In 1737, as we have already observed, appeared his "New Treatise of Fluxions." In 1740 he produced two other works also in quarto: the first entitled "A Treatise on the Nature and Laws of Chance;" the second, "Essays on several curious and interesting Subjects in Speculative and Mixed Mathematics." In 1742 appeared his "Doctrine of Annuities and Reversion." In 1743, he was, principally through the interest of Mr. Jones, father of the celebrated Sir William Jones, and himself an able mathematician, appointed Professor of Mathematics at Woolwich: and the same year he gave to the world a large volume,

entitled "Mathematical Dissertations." In 1745 he was admitted a fellow of the Royal Society, on a recommendation signed by four of the most eminent mathematicians in England; and about the same time he published his "Treatise on Algebra," one of the most valuable and best known of his productions. His "Elements of Geometry," another very able work, which has gone through many editions, appeared in 1747; his "Trigonometry, Plane and Spherical," in 1748; a new work on the different calculus called "The Doctrine and Application of Fluxions," in 1750; in 1752, his "Select Exercises for Young Proficients in Mathematics," another excellent and most useful performance; and finally, in 1757, his "Miscellaneous Tracts." To all these labours are to be added the papers he published in the Philosophical Transactions, and his contributions to the Ladies' Diary, of which he was for several years the editor. He died in 1761, in his fifty-first year.

Here, then, is an inspiring example, showing how a man may triumph over almost any outward circumstances. Nor let it be said that such victories are reserved only for persons of extraordinary intellectual powers. We repeat that it is not genius, but resolution and perseverance, that are wanted. Simpson was not a man of much original or inventive talent; nor did he possess any quality of mind which would have made him one of the wonders of his time, if he had set out in life with the ordinary advantages. His writings are all able, generally useful, and sometimes ingenious; but he is not to be enumerated among those who have carried science forward, or materially assisted in any of its great conquests. Not that he was, in point even of mental capacity, by any means an ordinary man; but there is an immeasurable interval between such men as Simpson and those whose writings and discoveries are destined to influence and mould their own and all

succeeding ages. His chief talent was great clearness and quickness of apprehension; and very much of this he owed to the eagerness and devotion with which he gave himself up to the study of whatever he wished to make himself master of, and the unrelaxed attention which he was consequently enabled to apply to it. This, indeed, is rather a habit of mind which may be acquired, than a talent that one must be born with; or at least it depends much more than many other sorts of talent on those moral qualities which may be excited and strengthened by the proper discipline in every man. It was here that Simpson's superiority principally lay—in that passionate love of knowledge which prompted him to seek it in defiance of all impediments, and in that courage and perseverance with which he encountered and overcame, in this pursuit, a succession of difficulties which many would scarcely have had nerve enough to look in the face. Among those born in the same rank of life to which he originally belonged, there are, undoubtedly, at all times, numbers who occasionally feel something of the ambition that animated him, and would at least be very glad if, without much trouble, they could secure for themselves the profit and power and enjoyment attendant upon intellectual cultivation. But the desire dies away in them, and ends in nothing, because they have not fortitude enough to set earnestly and resolvedly about combating the obstacles which oppose its gratification. These obstacles appear, to their indolence and timidity, far more formidable than they really are. There are few cases in which they can be actually combined in greater force than they were in that of him whose history we have just sketched. It may be hoped that it does not often happen, in the present day, that a parent shall either deny his child an education which it is in his power to procure for him, or obstinately oppose his most praiseworthy efforts in the work of self-improvement. (Instruction in the

elements of learning, in reading, writing, and the rudiments of arithmetic, may be said to be, in our own country, within the reach of all; so that even the son of the poorest artizan or labourer has scarcely now, in any case to begin life unprovided with what we may call the great pass-keys to all literary and scientific knowledge. Thus accoutred, his future progress depends upon himself; and any degree of proficiency is within his reach. Let those who doubt this reflect on what Thomas Simpson accomplished, in circumstances almost as unfavourable as can well be imagined. His first acquaintance with books was formed during moments stolen from almost incessant labour, and cost him his domestic peace, the favour of his friends, and finally, the shelter of his father's roof. He never had afterwards either any master to instruct him, or any friend to assist him in providing for the necessities of the passing day; but, on the contrary, when he wished to make himself acquainted with any new subject, he could with difficulty find a book out of which to study it, and had a family to support at an age when many have scarcely begun even to maintain themselves. Yet, with both his days and his evenings employed in toiling for a subsistence, he found time for intellectual acquisitions, such as to a less industrious and ardent student would have sufficed for the occupation of a whole life. Here is a striking proof how independent we really are, if we choose, of those external circumstances which seem to make so vast a difference of situation between man and man; and how possible it is for us, in any situation, at least to enrich our minds, if fortune refuse us all other riches. It is the general ignorance of this great truth, or indifference to it, that prevents it from being oftener exemplified; and it would be rendering a high service to the human species, if we could awaken men's minds to a sufficiently lively trust in it, and a steady sense of its importance.

To this history we may append that of EDMUND STONE,

from whose translation of the Marquis de l'Hôpital's French treatise it was, as we have seen, that Simpson acquired his first knowledge of fluxions. Stone affords us another instance of a self-educated mathematician. Neither the place nor the time of his birth is exactly known; but he was probably a native of Argyllshire, and born a few years before the close of the seventeenth century. He is spoken of as having reached an advanced age in 1760, and he died in 1768. The only account we have of his early life is contained in a letter, which is to be found prefixed to a French translation of one of his works, from his contemporary, the Chevalier Ramsay, who knew him. His father, Ramsay tells us, was gardener to the Duke of Argyll, who, walking one day in his garden, observed a Latin copy of Newton's "Principia" lying on the grass, and thinking it had been brought from his own library, called some one to carry it back to its place. "Upon this," (the narrative proceeds), "Stone, who was then in his eighteenth year, claimed the book as his. 'Yours!' replied the Duke. 'Do you understand Geometry, Latin, and Newton?' 'I know a little of them,' replied the young man. The Duke was surprised; and having a taste for the sciences, he entered into conversation with the young mathematician. He asked him several questions; and was astonished at the force, the accuracy, and the candour of his answers. 'But how,' said the Duke, 'came you by the knowledge of all these things?' Stone replied, 'A servant taught me, ten years since, to read. Does one need to know anything more than the twenty-four letters in order to learn everything else that one wishes?' The Duke's curiosity redoubled: he sat down on a bank, and requested a detail of the whole process by which he had become so learned.

"'I first learned to read,' said Stone; 'the masons were then at work upon your house. I approached them one day, and observed that the architect used a

rule and compasses, and that he made calculations. I inquired what might be the meaning and use of these things, and I was informed that there was a science called arithmetic. I purchased a book of arithmetic, and I learned it. I was told there was another science called geometry; I bought the necessary books, and I learned geometry. By reading, I found that there were good books in these two sciences in Latin; I bought a dictionary, and I learned Latin. I understood, also, that there were good books of the same kind in French; I bought a dictionary, and I learned French. And this, my lord, is what I have done: it seems to me that we may learn everything when we know the twenty-four letters of the alphabet.'"

Under the patronage of the Duke of Argyll, Stone, some years after this, made his appearance in London, where, in 1723, he published his first work—a "Treatise on Mathematical Instruments," principally translated from the French. In 1725 he was chosen a Fellow of the Royal Society. Next year appeared his Mathematical Dictionary, which was followed by other occasional productions down to the year of his death. Of his private history, however, after he took up his residence in the metropolis, little or nothing is known. It is to be feared that he spent his latter days in neglect and poverty. He had contributed several papers to the Transactions of the Royal Society; but we find his name omitted in the list of members, after the year 1742, probably in consequence of his inability to pay the small annual contribution which, we may remark by-the-by, was a few years after remitted to Simpson; and which Sir Isaac Newton had, on his own petition, been excused from paying. He is spoken of, by a writer in the Critical Review for 1760, as of unblemished reputation; and yet, notwithstanding his universally acknowledged abilities, and his uncontested services to the public, "living, at an advanced age, un-

rewarded, except by a mean employment that reflects dishonour on the donors." Ramsay, in the letter already quoted, speaks in the strongest terms of Stone's simple, ingenuous, and upright character, and of his ardent and disinterested attachment to science. He was, however, by no means a man of the same powers of mind with Simpson. Even in those departments of learning in which he chiefly excelled, his knowledge appears to have been somewhat superficial; and his principal works have been characterized as abounding in errors. He seems, upon the whole, to have had rather a quick and active, than either a very profound or a very acute understanding; and some of his speculations are singularly unphilosophical, especially that contained in the last work he gave to the world, in which he attempts to expose the insufficiency of the proofs on which the spherical form of the earth has been assumed, arguing, with incredible absurdity, that it is just as likely to be an angular figure,—as if the waters of the sea, for example, could anywhere maintain themselves in a position like that of the rafters of a house. We may, perhaps, trace something of all this to the entirely unassisted and solitary efforts to which he owed his first acquaintance with science and literature. A want of depth and solidity is by no means the necessary or uniform characteristic of the attainments of the self-educated scholar; who, on the contrary, is apt to be distinguished for a more than usually perfect acquaintance with the subjects which he has probably studied with more than usual effort and application. But a mind gifted in a remarkable degree with the capacity of rapid apprehension is the kind of mind that is likely to suffer most from being left to be altogether its own instructor; and especially when placed in circumstances which shut it out from that most salutary and strengthening of all intellectual exercises, communication and encounter with other intellects. This was Stone's case. He had not only no

master, but no companion in his studies—no one even to put his knowledge to the proof, or with whom, by trying it, as it were, in conflict, he might discover either its strength or its weakness. Then, his facility in possessing himself of the outlines of a subject deceived and betrayed him: he skimmed its surface with so much ease and expedition, that he had no time to think what was beneath, or that anything was beneath; and thus he acquired a habit of precipitate procedure, and vague and unphilosophic thinking, in all his speculations. If he had had a few associates in his early pursuits, he probably would have escaped all this, as well as some other deficiencies and inaptitudes under which he laboured during his life.

Nothing can be more barbarous than the ambitious rhetoric of the self-taught mathematician's English style. He is talking, in the second edition of his book on Mathematical Instruments, published in 1760, of a newly-invented mariner's compass; and the following are the terms in which, at the close of his description, he expresses what must be understood, we presume, to be his unfavourable opinion of the contrivance:—"The plants and trees of the gardens of the arts and sciences, cultivated by the *dung* of ambition, and nourished with the *waters* of interest, are very subject to be blasted by the *winds* of error, and sometimes stunted by the *weeds* of imposition." The metaphors of genuine eloquence start forth finished and glowing from the imagination; this is to construct them, as a mason does the wall of a house, with a plummet and a trowel.

Edmund Stone must not be confounded with his countryman and contemporary, JEROME STONE, who was also, in great part, a self-educated man. The only notice we have of his life is in Sir John Sinclair's Statistical Account of Scotland, where we are told that he was born, in 1727, in the parish of Scoonie, in Fife, and that his father was a seaman, who died abroad when Jerome

was only three years old, leaving his widow to maintain herself and her young family in the best way she could by her own exertions. Elementary education in Scotland, however, has long been so cheap as to be within the reach of the poorest; and Jerome was accordingly taught reading, writing, and a little arithmetic, at the parish school. But in his mother's narrow circumstances it was necessary that he should, as soon as possible, do something for his own support; and therefore, while yet hardly more than a boy, he commenced travelling the country as a chapman or pedlar, with a miscellaneous assortment of trinkets, tapes, and other portable wares. He soon, however, found this occupation intolerably unintellectual; and converted his stock into books, with which he used to attend at fairs, in those days the great marts of all kinds of popular commerce in Scotland. Profiting by the opportunities of his new vocation, he now proceeded to make himself a scholar; and either from a predilection for theological learning, natural to the Scottish peasantry in general, or from an idea that he was in this way beginning at the beginning, he commenced his studies with the Hebrew language. In this, unassisted by any instructor, he attained such proficiency, as to be able to read the Old Testament with ease. Encouraged by this success, he next applied himself to Greek; and in a short time made himself as familiar with the original of the New Testament as he was with that of the Old. All this time he knew nothing of Latin; but, finding that all the best books even on the Greek and Hebrew were written in that language, he determined to acquire it also. (It is probable, though it is not so stated, that he had obtained much of his knowledge of the two sacred tongues through the medium of the common translation of the Bible: no dictionary of either, with the words interpreted in English, was, we believe, as yet in existence. Possibly, when he proposed to make himself master of Latin, he

might not be aware that the same resource was still open to him; nor, indeed, was it open in the same degree, as the English Bible does not correspond so exactly to any Latin version of the Scriptures as it does to the Greek and Hebrew originals. At all events he thought it necessary, we are told, to apply on this occasion to the parish schoolmaster. Under this master's guidance his Latin studies proceeded so prosperously, that he soon became known in the neighbourhood as a prodigy of learning. Fortunately, among the heritors, or landed proprietors, of the parish was the Rev. Dr. Tullidelph, Principal of the United College in the University of St. Andrew's, and a gentleman of distinguished erudition and talent. Struck with the remarkable abilities and acquirements of young Stone, he proposed his removal to the university, where he undertook that such provision should be made, in order to enable him to pursue his studies, as his circumstances required. Stone accordingly proceeded to St. Andrew's, where he soon more than fulfilled the expectations his early attainments had excited, both by his rapid progress in every branch of study, and by a display of talent out of the class-room, which still more contributed to make him the pride of the university and the idol of his fellow-students. Unhappily, the remainder of his history is too soon told. When he had been about three years at college, he was appointed, on the recommendation of the professors, assistant in the grammar-school of Dunkeld; and in two or three years after he was elected head master. It does not appear how long he held this situation; but he was in the midst of his literary pursuits, and giving every promise of a distinguished career, when he was suddenly cut off by fever, in 1757, in the thirtieth year of his age. At this time, none of his productions had been given to the world, except some humorous pieces in verse, which had appeared in the Scots Magazine, when he was at college. Since his

death, an allegory, which he left in manuscript, entitled "The Immortality of Authors," has been frequently printed. The work, however, which had principally engaged the last years of his short life, was "An Inquiry into the Origin of the Nation and Language of the ancient Scots, with Conjectures about the Primitive State of the Celtic and other European Nations." This, although unfinished, is said to have displayed extraordinary ingenuity and learning. It has never, we believe, been printed; although, if the manuscript be still in existence, its publication might not be unacceptable to the students of history and philology, with whom the subject to which it relates has long been one of high interest. Stone's views, in so far as they are stated, seem to have been in conformity with those supported by the most learned and enlightened of later inquirers.—

CHAPTER VII.

PURSUIT OF KNOWLEDGE UNITED WITH THAT OF BUSINESS:—CICERO; SIR WILLIAM JONES; JULIUS CÆSAR; FREDERICK THE GREAT; SULLY; DE THOU; BACON; CLARENDON; SELDEN; HALE; GROTIUS.

In general, even with those who have had the ordinary advantage of education in their earlier years, only a very limited portion of time can be given to the pursuit of knowledge in after life. Yet it is wonderful how much has been sometimes done in this way by those whose leisure has been the scantiest. The cultivation of science and literature has often been united with the most active and successful pursuit of business, and with the duties of the most laborious professions. It has been said of Cicero, that "no man whose life had



CICERO.—FROM AN ANTIQUE BUST.

been wholly spent in study, ever left more numerous or more valuable fruits of his learning in every branch of science and the polite arts—in oratory, poetry, philosophy, law, history, criticism, politics, ethics; in each

of which he equalled the greatest masters of his time; in some of them excelled all men of all times. His remaining works, as voluminous as they appear, are but a small part of what he really published. His industry was incredible, beyond the example or even conception of our days: this was the secret by which he performed such wonders, and reconciled perpetual study with perpetual affairs. He suffered no part of his leisure to be idle, or the least interval of it to be lost." These are the words of his learned and eloquent biographer, Dr. Middleton. He says himself in one of his Orations:—"What others give to their own affairs, to the public shows and other entertainments, to festivity, to amusement, nay even to mental and bodily rest, I give to study and philosophy." He tells us, too, in his Letters, that on days of business, when he had anything particular to compose, he had no other time for meditating but when he was taking a few turns in his walks, where he used to dictate his thoughts to his amanuenses, or scribes, who attended him. His Letters afford us, indeed, in every way, the most remarkable evidence of the active habits of his life. Those that have come down to us are all written after he was forty years old; and, although many of course are lost, they amount in number to about a thousand. "We find many of them," says Middleton, "dated before daylight; some from the senate; others from his meals, and the crowd of his morning levee." "For me," he himself exclaims, addressing one of his friends, "*ne otium quidem unquam otiosum*—even my every moment of leisure has its occupation."

In modern times the celebrated SIR WILLIAM JONES afforded the world, in this respect, the example of almost another Cicero. We have already mentioned his wonderful attainments in languages. All his philosophical and literary studies were carried on among the duties of a toilsome profession, which he was, neverthe-

less, so far from neglecting, that his attention to all its demands upon his time and faculties constitutes one of the most remarkable of his claims to our admiration. But he was from his boyhood a miracle of industry, and showed, even in his earliest years, how intensely his soul glowed with the love of knowledge. He used to relate that, when he was only three or four years of age, if he applied to his mother, a woman of uncommon intelligence and acquirements, for information upon any subject, her constant answer to him was, "Read, and you will know." He thus acquired a passion for books, which only grew in strength with increasing years. Even at school his voluntary exertions vied in amount with his prescribed tasks; and Dr. Thackeray, one of his masters, was wont to say of him, that he was a boy of so active a mind, that if he were left naked and friendless on Salisbury Plain, he would, nevertheless, find the road to fame and riches. At this time he was frequently in the habit of devoting whole nights to study, when he would generally take coffee or tea, to keep off sleep. He had, even already, merely to divert his leisure, commenced his study of the law; and it is related that he would often amuse and surprise his mother's legal acquaintances by putting cases to them from an abridgment of Coke's Institutes, which he had read and mastered. In after-life his maxim was never to neglect any opportunity of improvement which presented itself. In conformity with this rule, while making the most wonderful exertions in the study of Greek, Latin, and the Oriental languages, at Oxford, he took advantage of the vacations to learn riding and fencing, and to read all the best authors in Italian, Spanish, Portuguese, and French; thus, to transcribe an observation of his own, "with the fortune of a peasant, giving himself the education of a prince." In the same spirit, while tutor, some time after this, in the family of Lord Spencer, he embraced an opportunity of

accomplishing himself in dancing and the use of the broadsword, and of learning the German language, music, and the art of playing on the Welsh harp, the instrument of his country. It was while residing in the Temple, and busily engaged in the study of the law, that, beside continuing his Oriental studies with great zeal, he found time to compose, and prepare for the press, a translation of the speeches of the Greek orator Isæus, and a volume of poems. Yet he was, at this very time, both reading and writing elaborately on subjects of law and jurisprudence—an evidence of his proficiency in which he gave to the world, a few years after, in his learned Treatise on the Law of Bailments. He found leisure, too, in the midst of all these professional and literary occupations, to attend Dr. William Hunter's Lectures on Anatomy, and to prosecute the study of mathematics so far as to be able to read Newton's Principia.

In India, where he filled the office of Judge in the Supreme Court of Bengal, and where his professional duties were of the most laborious nature, he contrived to do nearly as much as ever in the study of general literature and philosophy. He had scarcely arrived in the country when he exerted himself to establish a society in Calcutta, on the model of the Royal Society of London, of which he officiated as president as long as he lived, enriching its Transactions every year with the most elaborate and valuable disquisitions on some one department or another of oriental philology and antiquities. Almost his only time for study now was during the vacation of the courts; and here is the account, as found among his papers, of how he was accustomed to spend his day during the long vacation in 1785. In the morning, after writing one letter, he read ten chapters of the Bible, and then studied Sanscrit grammar, and Hindoo law; the afternoon was given to the geography of India, and the evening to Roman

history; when the day was closed by a few games at chess, and the reading of a portion of Ariosto. Already, however, his health was beginning to break down under the climate; and his eyes had become so weak, that he had been obliged to discontinue writing by candle-light. But nothing could prevent him from pursuing the studies he loved, while any strength remained to him. Even while confined by illness to his couch, he taught himself botany; and it was during a tour he was advised to take for the recovery of his health, that he wrote his learned "Treatise on the Gods of Greece, Italy, and India,"—as if he had actually so disciplined his mind, that it adopted labour like this for relaxation. His health, after a time, was partially restored; and we find him again devoting himself both to his professional duties and his private studies with more zeal and assiduity than ever. When business required his attendance daily in Calcutta, he resided at a country-house on the banks of the Ganges, about five miles from the city. "To this spot," says his amiable and intelligent biographer, Lord Teignmouth, "he returned every evening after sunset, and in the morning rose so early as to reach his apartments in town, by walking, at the first appearance of dawn. The intervening period of each morning, until the opening of court, was regularly allotted and applied to distinct studies." At this time his hour of rising used to be between three and four. During the vacation of the court he was equally occupied. Writing from Crishna, his vacation residence, in 1787, he says, "We are in love with this pastoral cottage; but though these three months are called a vacation, yet I have no vacant hours. It rarely happens that favourite studies are closely connected with the strict discharge of our duties, as mine happily are: even in this cottage I am assisting the court by studying Arabic and Sanscrit, and have now rendered it an impossibility for the Mahometan or Hindoo lawyers to

impose upon us with erroneous opinions." It was these constant exertions, in truth, that gave its chief enjoyment to his life. "I never was happy," he says in this very letter, "till I was settled in India."

This eminent and admirable man, however, at last fell a sacrifice to his zeal in the discharge of his duty; and, if it has been accounted a befitting fate for a great captain to die in the field of battle, surely his is to be deemed no unenviable lot who, after a life, whether of many or of few years, in which he has done enough for his fame, sinks to his rest in the full brightness of a career made glorious by many peaceful triumphs. The greatest literary achievement of Sir William Jones was his last—the digest he undertook to superintend of a complete body of Hindoo and Mahometan jurisprudence. To this work, considered by him as of the very highest importance to the right administration of law in India, but encompassed, from a variety of causes, with difficulties of the most formidable description, he resolved, after long consideration, to devote himself, even under increasing weakness of sight, and probably a general decay of constitution, which a fervid and unwearied spirit did not permit him to perceive. In the midst of his labours, it was found necessary that Lady Jones should proceed to England for the sake of her health; and this separation he felt severely: but he determined, notwithstanding, to remain in the country himself until he should have finished at least a certain portion of the task on the accomplishment of which he had set his heart. He had been divided, however, but a few months from the companion of his life, and of many of his studies, when he was suddenly attacked by an inflammation of the liver, which carried him off, after seven days' illness, at the early age of forty-seven.

It was by a persevering observance of a few simple maxims, that Sir William Jones was principally enabled to accomplish what he did. One of these, as we have

already mentioned, was never to neglect an opportunity of improvement: another was, that whatever had been attained was attainable by him, and that, therefore, the real or supposed difficulties of any pursuit formed no reason why he should not engage in it, and with perfect confidence of success. "It was also," Lord Teignmouth tells us, "a fixed principle with him, from which he never voluntarily deviated, not to be deterred, by any difficulties which were surmountable, from prosecuting to a successful termination what he had once deliberately undertaken." "But what appears to me," adds his Lordship, "more particularly to have enabled him to employ his talents so much to his own and the public advantage, was the regular allotment of his time to particular occupations, and a scrupulous adherence to the distribution which he had fixed: hence all his studies were pursued without interruption or confusion. Nor can I omit remarking the candour and complacency with which he gave his attention to all persons, of whatever quality, talents, or education: he justly concluded that curious or important information might be gained even from the illiterate; and, wherever it was to be obtained, he sought and seized it." By these methods it was that he accumulated that vast mass of knowledge, and enabled himself to accomplish those profound and extended labours, which remain, even now that he is dead, for the benefit of us who yet live, and of those who are to come after us. This is truly to make a short life long—to exist, in spite of death, for unnumbered generations.

Biography abounds, in truth, with examples of the union of the pursuits of literature and science with those of every department of active life. The most elegant of the writers of ancient Rome was also the most renowned of her warriors. It was amid the hurry and toils of his campaigns that JULIUS CÆSAR must have written those *Commentaries*, or Memoirs of his military

exploits, which have immortalized his name more than all his victories, and thus amply justified the anxiety he is recorded to have shown to preserve the work, when, being obliged to throw himself from his ship in the bay



COIN OF JULIUS CÆSAR.

of Alexandria, and swim for his life, he made his way to the shore with his arms in one hand, and holding his Commentaries with his teeth. Cæsar distinguished himself also as a writer on grammar, astronomy, history, and a variety of other subjects; and he was universally accounted one of the most learned scholars, as well as greatest orators, of his age. Yet his life was spent either in the field, or among political convulsions at home, almost from his boyhood. If he found time and tranquillity for the cultivation of letters, who is there that might not? Like our own Alfred, too, —another illustrious instance of the hero, statesman, and scholar, all in one—Cæsar had to struggle all his life with the weakness and depression of bodily disease. "But though he was a spare man," says Plutarch, "and had a white and soft skin, somewhat distempered in his head, and subject to the falling sickness, (which, they say, first seized him at Corduba, in Spain,) yet he did not make his indisposition of body a pretext for effemi-

nacy, but made his wayfaring a medicine for his infirmity, whilst, by indefatigable journeying, thin diet, and lying out in the fields, he struggled and waged war, as it were, even with his disease, and kept his body so guarded by this means, that it was very hard for any ill to attack him. He slept most commonly in his chariot or his litter, but employed the very hours of rest in the designs of action. In the daytime he was carried about to castles, cities, or fortifications, with one servant along with him in the chariot, who, among other things, used to write down what he dictated, and a soldier behind the vehicle to carry his sword. Thus would he travel so swiftly, that, having set out from Rome, he would arrive at the river Rhone in eight days. Now, he rode well from his childhood, for he had accustomed himself to sit with his hands behind him, and to put the horse to the full speed. But, during his wars in Gaul, he improved himself so as to dictate letters from on horseback as fast as two amanuenses, or, as Oppius affirms, more than two, could take down his words."

The elder and younger Scipio Africanus, and Polybius, the friend of the latter, of whose Universal History, written in Greek in forty books, only five have come down to us, are other names that might be quoted from ancient times in illustration of how possible it is to combine the habits of a military life with the love and the pursuit of literature. One of the most remarkable examples of this combination which modern history supplies is to be found in FREDERICK II.; of Prussia, best known as Frederick the Great. The principal part of the life of this monarch was spent in the camp, in a constant struggle with a host of enemies. Yet, even then, when the busy day scarcely afforded a vacant moment, that moment, if it came, was sure to be given to study. Frederick had very early formed an attachment to reading, which neither the opposition of his

father, who thought that the scholar would spoil the soldier, nor the schemes of ambition and conquest which occupied him so much in after life, were able to destroy or weaken. When at last, therefore, he found himself



FREDERICK II. OF PRUSSIA.

at liberty, or compelled, to sheathe the sword, he gave himself up to the cultivation and patronage of literature, and the arts of peace, as eagerly as he had ever done to the pursuit of military renown. His life, from his earliest years, had been one of great and regular activity. Even before his accession to the throne, and while yet but a young man, he had established in his residence, at Rheinsberg, nearly the same system of studious application, and economy in the management of his time, to which he ever afterwards continued to adhere. His relaxations, even then, were almost en-

tirely of an intellectual character; and he had collected around him a circle of literary associates, with whom it was his highest enjoyment to spend his hours in philosophic conversation, or in amusements not unfitted to adorn a life of philosophy. In a letter written at this time to one of those friends, he says: "I become every day more covetous of my time; I render an account of it to myself; and I lose none of it but with great regret. My mind is entirely turned toward philosophy; it has rendered me admirable services, and I am greatly indebted to it. I find myself happy, abundantly more tranquil than formerly; my soul is less subject to violent agitations; and I do nothing till I have fully considered what course of action I ought to adopt." In another letter to the same correspondent, speaking of the employments of himself and the literary friends residing with him, he says: "We have divided our occupations into two classes, of which the one comprehends those that are useful, and the other those that are agreeable. I reckon, in the number of those that are useful, the study of philosophy, of history, and of languages; the agreeable are music, and the tragedies and comedies that we exhibit here. Our serious occupations have, however, always the privilege of preceding the others; and I dare venture to affirm to you, that we make only a reasonable use of those pleasures; engaging in them for no other purpose but to relax our minds, and to temper that moroseness and extreme philosophic gravity, which does not easily suffer its countenance to be enlivened by the Graces." A more complete notion, however, will be obtained of the management by which he contrived to make so much use of his time, from the following interesting account of his daily occupations, which Dr. Towers, who has written a history of his reign, has collected from a variety of authorities:—

"It was his general custom to rise at five o'clock in

the morning, and sometimes earlier. He commonly dressed his hair himself, and seldom employed more than two minutes for that purpose. His boots were put on at his bedside, for he scarcely ever wore shoes. After he was dressed, the adjutant of the first battalion of his guards brought him a list of all the persons that were arrived at Potsdam, or departed from thence, and an account of whatever had occurred in the garrison. When he had delivered his orders to this officer, he retired into an inner cabinet, where he employed himself in private till seven o'clock. He then went into another apartment, where he drank coffee or chocolate; and here he found upon the table all the letters addressed to him from Potsdam, Berlin, or any other parts of his dominions. Foreign letters were placed upon a separate table. After reading all these letters, he wrote hints or notes in the margin of those which his secretaries were to answer; and then returning into the inner cabinet, carried with him such as he meant to write or dictate an answer to himself. Here he employed himself till nine o'clock with one of his private secretaries. He then returned back again into his former apartment, where he was attended by three secretaries, each of whom gave him an account of what he had done; after which the king delivered his orders to them, with the letters they were to answer. None of these answers, however, were sent off till they had been read, and many of them signed by the king. At ten o'clock the generals who were about his person, whom he was accustomed to send for in their turn, attended him to his closet, where he conversed with them on the news of the day, politics, tactics, and other subjects; and at this time he also gave audience to such persons as had received previous notice to attend. At eleven o'clock he mounted his horse, and rode to the parade, where he reviewed and exercised his regiment of guards; and 'at the same hour,' says

Voltaire, 'all the colonels did the same throughout the provinces.' He afterwards walked some time in the garden, with his generals and the rest of the company whom he had invited to dine with him. At one o'clock, he sat down to dinner, and his company generally consisted of the princes his brothers, some of his general officers, some of the officers of his regiment of guards, and one or two of his chamberlains. He had no carver, but did the honours of the table himself, like a private gentleman. His table generally consisted of twenty-four covers; and his dinner-time did not much exceed an hour. After dinner he generally conversed with some of his guests for about a quarter of an hour, walking about the room. He then retired into his private apartment, making low bows to his company. He remained in private till five o'clock, when his reader waited on him. His reading lasted about two hours, and this was succeeded by a concert, in which he himself was a performer upon the flute, and which lasted till nine. When the concert was over, he was attended by Voltaire, Algarotti, Maupertuis, or some other wits or favourites whom he had invited. With these he supped at half an hour after nine, and his company seldom consisted of more than eight persons, the king himself included. At twelve the king went to bed."

The literary works of Frederick will be at least allowed to show some industry, when it is stated that they extend, in the most complete edition, to no fewer than twenty-five octavo volumes—quite a wonderful amount of authorship, certainly, for one who led so busy a life, and strikingly illustrative of what may be done by the economical employment even of the merest odds and ends of time: for, compared to the leisure which many a student enjoys, such must be considered the very few hours every day which were the utmost that Frederick could by possibility have given to study.

But these works by no means require any apology for their quality on the score of their quantity. They consist of historical, poetical, and philosophical compositions—all of respectable ability, and several of considerable merit. His poem, entitled "The Art of War," his "History of his own Times," that of "The Seven Years' War," and his "Memoirs of the House of Brandenburgh," may be especially mentioned as works received into European literature.

It would be easy to select from the catalogue of those who have made the greatest stir in the world, either as conquerors or legislators, or borne the most active and conspicuous parts in any other way in the conduct of human affairs, many other names equally famous in the annals of literature, as in those of war or politics. In former times, indeed, a taste for science or general literature, and a familiarity with it, was more common among European statesmen, and professional men of all descriptions, than it now is. There is no greater name among those of the statesmen of France than that of the celebrated Duke of Sully, the writer of the well-known Memoirs, as well as of a variety of other works; and equally distinguished as a soldier, a financier, and an author. This great man used to find time for the multiplied avocations of every day by the most undeviating economy in the distribution of his hours. He rose all the year round at four o'clock in the morning, and was always ready to appear at the council by seven. His hour of dining was at noon, after which he gave audience to all without distinction who sought to be admitted to him. The business of the day was always finished in this way before supper, and at ten he regularly retired to bed. Sully's illustrious countryman and contemporary, the President De Thou (in Latin Thuanus), affords us another instance of the same sort. During the greater part of his life, De Thou was actively employed, in one capacity or another, in the manage-

ment of affairs of state; and yet he found time to write one of the greatest and most elaborate historical works in existence, his celebrated "History of his own Times," extending to one hundred and thirty-eight books, in Latin, besides various poetical pieces in the same language. In our own country, none were ever more mixed up with the political transactions of their times, or led busier lives from earliest years, than Sir THOMAS MORE, the great BACON, and Lord CLARENDON. And yet



these are three of our most voluminous as well as most eminent writers. Other names that might be added are those of JOHN SELDEN and Sir MATTHEW HALE. Both were public men, and much involved in the ceaseless political convulsions of one of the stormiest periods of English history; yet they are two of the

most distinguished luminaries both of the law and the literature of their day. Selden's works, which are partly in English, partly in Latin, and embrace many subjects of law, history, political controversy, and



LORD CLARENDON.



SIR MATTHEW HALE.

sacred, classical, and English antiquities, have been collected in six volumes folio. Those of Sir Matthew Hale are also very numerous; and relate to history, divinity, mathematics, and natural philosophy, as well as to several of the most important departments of the learning of his profession. He is said, during many years of his life, to have studied sixteen hours every day.

Selden is called *the glory of England* by his contemporary the celebrated Dutch scholar Grotius (or Groot), who was himself one of the most remarkable instances on record of the success with which the cultivation of general literature may be carried on in combination with legal and political studies, and even amid the toils and distractions of a public life of unusual bustle and vicissitude. From his sixteenth year, when he first appeared at the bar, till that of his death, at the age of sixty-two, Grotius was scarcely ever released from the burthen of political employment, except while he lay in prison, or, altogether exiled from his country,

wandered about from one foreign land to another in search of a temporary home. Yet, even in these seemingly most unpropitious circumstances, he produced a succession of works, the very titles of which it would



require several pages to enumerate, all displaying profound erudition, and not a few of them ranking to this day with the very best, or as the very best, that have been written on the subjects to which they relate. He occupies a respectable place in the poetry of his native language, and a high one among modern Greek and Latin poets. His critical labours in reference to the classical authors of antiquity are immense. In history, besides several other works, he has written one entitled "The Annals of Belgium," in eighteen books. Of a variety of theological productions we may mention only his celebrated "Treatise on the Truth of Christianity," one of the most popular books ever written, and which has been translated, not only into almost every language of modern Europe, but even into Greek,

Arabic, Persian, and several of the tongues of India. Finally, not to mention his other works in the same department, by his famous treatise on international law, entitled "On the Law of War and Peace," he has established for himself an immortal reputation in jurisprudence, not in his own country merely, but over all Europe, in every part of which the work was received, on its first appearance, with universal admiration, translated, commented upon, and employed as a text-book by all lecturers on the subject of which it treats. This work was written while Grotius resided in France, after making his escape from the castle of Loevenstein by a memorable stratagem. Having, in the religious disputes which then agitated Holland, taken the side of the Arminians in opposition to the Calvinists, when the latter obtained the ascendency, he was put on his trial, convicted of treason, and sentenced to the confiscation of all his property, and imprisonment for life. As some mitigation, however, of so hard a doom, it was permitted that his wife should share his fate; and that excellent and heroic woman accordingly took up her abode with her husband in the fortress we have named, where they remained together for nearly two years. At last, however, Grotius resolved to brave the hazards of a plan of escape, which had been some time before suggested by his wife. He had been in the habit of borrowing books from some of his friends in the neighbouring town of Gorcum, and these were always brought to him in a large chest, which was in like manner employed to convey them back when he had read or consulted them. This chest had at first been regularly searched, as it was carried into and brought back from the apartment of the prisoner; but, after some time, its appearance on its customary service became so familiar to the guards, that their suspicions were lulled, and it was allowed to pass without notice. A day, therefore, having been chosen when it was known that the com-

mandant was to be absent, Madame Grotius informed the commandant's wife, who was left in charge of the place, that she meant to send away all her husband's books, to prevent him from injuring his health by study, and requested that two soldiers might be allowed her to remove the load. In the meantime Grotius had taken his place in the chest, in the top of which small holes had been made for the admission of air. Upon lifting it from the ground, one of the soldiers, struck with its weight, jestingly remarked, that there must be an Arminian in it. "There are Arminian books in it," replied the wife of Grotius, with great presence of mind; and without saying anything more, they took it on their shoulders, and carried it down a ladder, which led from the apartment. It would appear, however, that their suspicions had been again awakened; for it is said, that before they had proceeded much further, the men resolved to mention the circumstance of its uncommon weight to the commandant's wife: but she, misled by what had been told her, ordered them to carry it away. It had been contrived to have a trusty female servant in waiting to accompany the chest to its place of destination, and under her care it was safely deposited in the house of a friend at Gorcum, when the illustrious prisoner was, of course, speedily released from durance. A good deal of management, however. was still necessary to enable him to effect his escape from the town. It is gratifying to have to add, that his wife, who, as soon as she understood that her husband was safe, confessed what she had done, although at first detained in close custody, was liberated, on petitioning the States-General, about a fortnight after. It was on the 21st of March, 1621, that Grotius obtained his liberty: and he arrived in Paris on the 12th of April. His wife rejoined him about the end of December. It was after this, while he lived in retirement in France, under the protection of Louis XIII., that he prepared

his great work on International Law, which was published in 1624. He survived till 1645.

Our distinguished living countryman, Mr. Grote, the historian of Greece, though English not only by birth but by a descent of some generations, is originally of foreign extraction, and the family name is, we believe, the same with that of the great Dutch scholar. He is another illustrious example of how a life of study may be combined with one of business and of action. In addition to the affairs of the banking-house in which he is a partner, much of Mr. Grote's time and attention was taken up for some years by his duties as an active member of parliament, representing one of the largest and most important constituencies in the kingdom; and yet, while still in the vigour of manhood, he has already completed what is certainly the most learned historical work that has been produced since that of Gibbon, and what may perhaps be accounted, upon the whole, the greatest achievement in prose literature that our age has seen.

CHAPTER VIII.

LITERARY SOLDIERS:—DESCARTES; BEN JONSON; BUCHANAN; CERVANTES.—SAILORS:—DAMPIER; DAVIS; DRURY; FALCONER; GIORDANI; FRANSHAM; OSWALD; COLUMBUS; COOK; VANCOUVER; COLLINGWOOD.

If the distractions of business or of professional duty are to be deemed an insurmountable bar to the cultivation of science or literature, what annoyances or interruptions of this description shall seem more unfavourable for such an attempt than those which beset the rude and unsettled life of a seaman or a soldier! Yet it has been in the midst of these that some of the persons whose names are most distinguished in the annals of literature and philosophy have begun their career. The great French mathematician and metaphysician Descartes, who was a person of rank, entered the army in obedience to the wishes of his family, at the age of twenty, and served first with the troops of the Prince of Orange, and afterwards with those of Maximilian of Bavaria. With the latter prince he was present at the battle of Prague, in 1620, when Maximilian, acting in concert with the emperor, Ferdinand II., obtained a signal victory over the Elector Palatine, Frederick. During his military life, however, Descartes never neglected his philosophical studies, of which he gave a striking proof on one occasion while he was in the service of the Prince of Orange. He happened to be in garrison with his regiment at the town of Breda, in the Netherlands, when, walking out one morning, he observed a crowd of people assembled round a placard or advertisment which was stuck up on the wall. Finding that it was written in the Dutch language. which he did not understand, he

inquired of a person whom he saw reading it, what it meant. The individual to whom he addressed his inquiries happened to be the Principal of the University of Dort, a man of distinguished mathematical attainments; and it was with something of a sneer that he informed the young officer that the paper contained the announcement of a difficult geometrical problem, of which the proposer challenged the most able men of the city to attempt the solution. Not repulsed by the tone and manner of the learned professor, Descartes requested to be favoured with a translation of the placard, which he had no sooner received than he calmly remarked that he thought he should be able to answer the challenge. Accordingly, next day he presented himself again before Beckmann (that was the name of the professor) with a complete solution of the problem, greatly to the astonishment of that individual, who had probably never before dreamed of the possibility of so much learning being found beyond the walls of a university.

It was at this period of his life, indeed, that this illustrious person laid the foundation of most of those mathematical discoveries which subsequently obtained for him so much celebrity. He wrote a Latin treatise on music, and projected several of his other works, during the time he was stationed at Breda.

Our celebrated countryman, Ben Jonson, whose employment in early life as a common mason or bricklayer has been already mentioned, could find no way of escaping from that laborious occupation, to which he had been doomed on his mother's second marriage, except by enlisting as a private soldier. Accordingly he served for some time against the Spaniards in the Netherlands, and gained a high reputation for personal prowess, of which he was in after life not a little vain. This was also the fate of the famous George Buchanan, one of the most elegant scholars and writers that modern times have produced—another illustrious evidence of

how little it is in the power of the most unquiet and disjointed times, or the most adverse fortunes, to interrupt the intellectual pursuits of a mind really in love with knowledge. Scarcely any part of Buchanan's long



BEN JONSON.

life was passed either in leisure or tranquillity. He was born in the county of Stirling in 1506. Although his family was good, his father was in straitened circumstances, and he was indebted for his education to the kindness of an uncle, who sent him to the university of Paris. The death of this uncle, after some time, left him in such a state of destitution, that, in order to get back to his native country, he was obliged to enter himself as a private in a corps which was leaving France to serve in Scotland as auxiliaries to the Duke of Albany. It would detain us too long to attempt any sketch of the remainder of a life of whose many troubles this was only the first commencement. Although in point of learning and genius, confessedly without a rival among his countrymen, and even acknowledged by all Europe as the chief of the poets and eloquent writers of his day, it is melancholy to think, that, amid the civil discords of those unhappy times, his portion

was little else than poverty, persecution, imprisonment, and exile. But his own mind, to borrow the expression of one of our old poets, was to him "a kingdom," of which the world's unkindness could not deprive him, and which he found, doubtless, under all he had to suffer, his sufficient consolation. He took refuge in literary labour from the cruel fortunes that pursued him. It was in a Portuguese dungeon that he composed his celebrated Latin version of the Psalms. He had just carried through the press his great work, "The History of Scotland," when, after a life of almost incessant trouble, he died at the age of seventy-six, being at the time in such a state of indigence, that when he felt his end approaching, having inquired of his servant how much money he had remaining, and finding that there was not enough for the expenses of his funeral, he ordered the whole to be given to the poor. He was accordingly buried at the cost of the city of Edinburgh.

Still more crowded with disasters is the history of the renowned Spanish writer CERVANTES, whose admirable Don Quixote ranks so high among the glories of modern literature. Cervantes, too, commenced life as a soldier. He lost his left hand fighting against the Turks at the battle of Lepanto, in 1571. Soon after this he was taken by the Algerines, by whom he was detained in captivity for five years. Even after he had recovered his liberty, and had returned to his native country, he was again in a short time thrown into confinement by an unjust decision of the courts, in a cause in which he was implicated; and it was while he lay in prison that the first part of Don Quixote was written. He was, soon after the publication of this work, once more restored to freedom; but, although he afterwards produced various other literary performances, he never succeeded in raising himself above the necessitous circumstances in which his early misfortunes had involved him. The dedication of the last work he gave

to the world is dated only four days before his death, and in it he mentions, with great calmness, his approaching dissolution. Cervantes died at the age of sixty-nine, on the 23rd of April, 1616. On the same day, nominally, but ten days later in reality (for in England we still reckoned by the old style), our own Shakespeare passed away from the earth at the age of fifty-two.

There are many cases on record of individuals who, even with scarcely any other education than what they contrived to give themselves while serving in subordinate and laborious situations in the camp or on shipboard, have attained to great familiarity with books, and sometimes risen to considerable literary or scientific distinction. The celebrated English navigator, DAMPIER, although he had been some time at school before he left his native country, yet went to sea at so early an age that, considering what a vagabond and lawless life he for a long time led, he must have very soon forgotten everything he had been taught, if he had not, in the midst of all his wild adventures, taken great pains both to retain and to extend his knowledge. That he must have done so is evident from the accounts of his different voyages which he afterwards published. We have few works of the kind more vigorously or graphically written than these volumes; and they contain abundant evidences of a scientific and philosophical knowledge of no ordinary extent and exactness. Along with Dampier's, may be mentioned an older name, that of JOHN DAVIS, the discoverer of the well-known Strait leading into Baffin's Bay. Davis also went to sea when quite a boy, and must have acquired all his knowledge both of science and of the art of composition while engaged among the duties of his profession. Yet we have from his pen not only accounts of several of his voyages, but also a treatise on the general hydrography of the earth. He was the inventor, besides, of a quadrant for taking

the sun's altitude at sea. ROBERT DRURY, too, whose account of the island of Madagascar, and of his strange adventures there, is now (from having been lately republished) a well-known book, deserves to be remembered when we are speaking of authors bred at sea. Drury was only fourteen when he set out on his first voyage in a vessel proceeding to India, and he was shipwrecked in returning home on the island of Madagascar, where he remained in a species of captivity for fifteen years; so that, when he at last contrived to make his escape, he had almost forgotten his native language. He afterwards, however, set about drawing up an account of his life—a task which he accomplished while serving in the humble capacity of a porter at the India House. The work is written in a plain but sensible style, and contains many interesting details respecting the manners of the natives of Madagascar. It is perhaps the better for having been compressed by a friend, Drury's original manuscript, it is said, having extended to eight hundred large folio pages.

FALCONER, the author of "The Shipwreck," as is generally known, spent his life, from childhood, at sea. He was probably born in one of the small towns in the county of Fife which border the Frith of Forth. His parents appear to have been poor; and all his brothers and sisters, who were numerous, are said to have been deaf and dumb. No account has been given of how he acquired the elements of education, with the exception of a report that he found an instructor in a person of the name of Campbell, a man of some literary taste and acquirements, who happened to be purser in one of the vessels in which young Falconer sailed. However this may be, Falconer appeared as an author at a very early age, having been only, it is said, in his twenty-first year when, in 1751, he gave to the world his first production, a poem on the death of Frederick, Prince of Wales. He was ten or twelve years older when he published his

"Shipwreck," which is said to be founded in a great measure on the personal adventures of the author. Falconer did not permit the success of his poetical efforts to withdraw him from his profession, in which, having now transferred himself from the merchant-service to the navy, he continued to rise steadily till he was appointed purser of a man-of-war. Some time after attaining this promotion, he published the other work by which he is chiefly known, his "Universal Marine Dictionary," which was very favourably received, and is still a standard work. He had previously to this written several other poetical pieces on temporary subjects, which have long been forgotten. Shortly after the publication of his dictionary, he sailed for Bengal as purser of the frigate Aurora. The vessel, however, was never heard of after she passed the Cape of Good Hope.

The able Italian engineer and mathematician, GIORDANI, was originally a common soldier in one of the Pope's galleys. In this situation his capacity and good conduct attracted the attention of his admiral; and as a reward he was promoted to the post of purser of one of the vessels. It was his appointment to this situation which first formed his mind to study. Having accounts to keep, he soon found how necessary it was that he should know something of arithmetic, of which he was till then quite ignorant; and he determined therefore to teach himself the science, which it is said he did without assistance. From this commencement he extended his studies to other branches both of science and literature; and he was appointed at last to a professorship in the Sapienza College at Rome. Giordani published several able works in Latin on mathematical and physical subjects, and died in the year 1711.

The late Mr. JOHN FRANSHAM, who died at Norwich in 1810, was altogether one of the most eccentric characters to be found in the list of self-educated persons.

His name suggests itself to us here from the circumstance of his having passed part of his early life as a common soldier. He had been originally apprenticed to a cooper, with whom he remained for about two years, and it was in this situation that he taught himself mathematics. But, although he afterwards obtained the situation of clerk to an attorney, his restless disposition would not allow him to remain at his desk; and after wandering for some time about the country, he enlisted in the army, where, however, they did not keep him long, finding him quite unfit for service. Indeed, it was by this time become pretty evident that his mind was not a little deranged,—a matter which he shortly after put beyond doubt by renouncing Christianity, and making a formal profession of paganism. Although he published several works, however, in support of his peculiar theology, and in other respects conducted himself with great eccentricity, he contrived to maintain himself by teaching mathematics, in which occupation he is said to have displayed very considerable ability. He resided and took pupils for some years in London. Somewhat similar to Fransham's history is that of Mr. JOHN OSWALD, who is said to have taught himself Greek, Latin, and Arabic, while holding a lieutenant's commission in an infantry regiment in India. He afterwards returned to England, where he published a succession of poetical and political pamphlets, making himself remarkable at the same time by various singularities of behaviour and opinion, and especially by a rigid abstinence from animal food, and a professed predilection for the religious doctrines of the Brahmins. When the revolution of 1789 broke out in France, Oswald went over to that country, and entered the service of the republic, in which he obtained the rank of colonel. He was at length killed in battle.

COLUMBUS himself, one of the greatest men that ever lived, if it be a grand idea grandly realized that con-

stitutes greatness, not only, while leading the life of a seaman, pursued assiduously the studies more particularly relating to his profession, rendering himself the most accomplished geographer and astronomer of his time, but kept up that acquaintance which he had begun at school with the different branches of elegant literature. We are told that he was even wont to amuse himself by the composition of Latin verses. It was at sea, too, that our own COOK acquired for himself those



CAPTAIN JAMES COOK.

high scientific, and we may even add literary accomplishments, of which he showed himself to be possessed. This celebrated navigator was born in Yorkshire in

1728. His parents were poor peasants, and all the school education he ever had was a little reading, writing, and arithmetic, for which he was indebted to the liberality of a gentleman in the neighbourhood. He was apprenticed, at the age of thirteen, to a shopkeeper in the small town of Snaith, near Newcastle, and it was while in this situation that he was first seized with a passion for the sea. After some time, he prevailed upon his master to give up his indentures, and entered as one of the crew of a coasting-vessel engaged in the coal trade. He continued in this service till he reached his twenty-seventh year, when he exchanged it for that of the navy, in which he soon distinguished himself so greatly that he was three or four years after appointed master of the Mercury, which belonged to a squadron then proceeding to attack Quebec. Here he first showed the proficiency he had already made in the scientific part of his profession, by an admirable chart which he constructed and published of the River St. Lawrence. He felt, however, the disadvantages of his ignorance of mathematics; and, while assisting in the hostile operations carrying on against the French on the coast of North America, he applied himself to the study of Euclid's Elements, which he soon mastered, and then began that of astronomy. A year or two after this, while again stationed in the same quarter, he communicated to the Royal Society an account of a solar eclipse which took place on the 5th of August, 1766, deducing from it, with great exactness and skill, the longitude of the place of observation; and his paper was printed in the Philosophical Transactions. He had now completely established his reputation as an able and scientific seaman; and it having been determined by Government, at the request of the Royal Society, to send out qualified persons to the South Sea to observe the approaching transit of the planet Venus over the sun's disc—a phenomenon which promised several in-

teresting results to astronomy—Cook was appointed to the command of the Endeavour, the vessel fitted out for that purpose. He conducted this expedition, which, in addition to the accomplishment of its principal purpose, was productive of a large accession of important geographical discoveries, with the most consummate skill and ability; and was, the year after he returned home, appointed to the command of a second vessel destined for the same regions, but having in view more particularly the determination of the question as to the existence of a southern polar continent. He was nearly three years absent upon this voyage; but so admirable were the methods he adopted for preserving the health of his seamen, that he reached home with only the loss of one man from his whole crew. Having addressed a paper to the Royal Society upon this subject, he was not only chosen a member of that learned body, but was further rewarded by having the Copley gold medal voted to him for his experiments. Of this second voyage he drew up the account himself, and it has been universally esteemed a model in that species of writing.

All our readers know the termination of Cook's distinguished career. His third voyage, undertaken for the discovery of a passage from the Pacific to the Atlantic along the north coast of America, although unsuccessful in reference to that object, was fertile in geographical discoveries, and equally creditable with those by which it had been preceded to the sagacity, good management, and scientific skill of its unfortunate commander. The death of Captain Cook took place at Owhyhee (now more usually written Hawaii), the principal island of the Sandwich group, in a sudden tumult of the natives, on the 14th of February. 1779. The news of the event was received with general lamentation, not only in our own country, but throughout Europe. Pensions were bestowed upon his widow and three sons by the Government; the Royal Society

ordered a medal to be struck in commemoration of him; his eulogy was pronounced in the Florentine Academy; and various other honours were paid to his memory, both by public bodies and individuals. Thus, by his own persevering efforts, did this great man raise himself from the lowest obscurity to a reputation wide as the world itself, and certain to last as long as the age in which he flourished shall be remembered by history. But better still than even all this fame—than either the honours which he received while living, or those which, when he was no more, his country and mankind bestowed upon his memory,—he had exalted himself in the scale of moral and intellectual being; had won for himself, by his unwearied striving, a new and nobler nature, and taken a high place among the instructors and best benefactors of mankind. This alone is true happiness—the one worthy end of human exertion or ambition—the only satisfying reward of all labour, and study, and virtuous activity or endurance. Among the shipmates with whom Cook mixed when he first went to sea, there was, perhaps, no one who ever either raised himself above the condition to which he then belonged in point of outward circumstances, or enlarged in any considerable degree the knowledge or mental resources he then possessed. And some will, perhaps, say that this was little to be regretted, at least on their own account; that the many who spent their lives in their original sphere were probably as happy as the one who succeeded in rising above it. But this is to cast but a hasty glance on human nature, and the scene of things in which we are placed. That man was never truly happy—happy upon reflection and while looking to the past or the future—who could not say to himself that he had made something of the faculties God had given him, and had not lived altogether without progression, like one of the inferior animals. We do not speak of mere wealth or station:—these are compara-

tively nothing; are as often missed as attained, even by those who best merit them; and do not of themselves constitute happiness when they are attained. But there must be some consciousness of an intellectual or moral progress, or there can be no satisfaction—no self-congratulation on reviewing what of life may be already gone—no hope in the prospect of what is yet to come. All men feel this, and feel it strongly; and, if they could secure for themselves the source of happiness in question by a wish, they would avail themselves of the privilege with sufficient alacrity. Nobody would pass his life in ignorance, if knowledge might be had by merely looking up to the clouds for it: it is the labour necessary for its acquirement that scares them. Yet it is, in truth, from the exertion by which it must be obtained, that knowledge derives at least half its value; for to this entirely we owe the sense of merit in ourselves which the acquisition brings along with it, and hence no little of the happiness of which we have just described its possession to be the source. Besides that the labour itself soon becomes an enjoyment.

To the example of Cook, if it were necessary, we might add those of others of his countrymen, who, since his time, have shown, in like manner, the possibility of uniting the cultivation of literature and science to the most zealous performance of the duties of the same laborious profession. For instance, VANCOUVER was a sailor formed under Cook; and to him we owe an interesting and ably-written account of the voyage which he made round the world in 1790 and the four following years. Lieutenant FLINDERS commanded the expedition sent out in 1801 to survey the coast of New Holland, and afterwards published an account of his voyage, accompanied by a volume of charts, which are considered as placing the author in the highest rank of modern hydrographers. In particular, we ought not here to forget the late Lord COLLINGWOOD, second in command to

Nelson at Trafalgar, and in all respects a man of first-rate merit, who, although he never sent any production to the press, has been proved by his correspondence, published since his death, to have been in reality one of the best of writers. Yet he was only thirteen when he first entered the navy, and during the remainder of his life he was scarcely ever ashore—circumstances which used to make his acquaintances wonder not a little where he got his style. He had always, however, been fond of reading and the study of elegant literature; and he found that even a life at sea afforded him many opportunities of indulging his taste for these enjoyments.

Lord Collingwood may be said to have been, in all respects, a perfect illustration of Wordsworth's fine lines on the character of "The Happy Warrior:"—

> "Whose powers shed round him in the common strife,
> Or mild concerns of ordinary life,
> A constant influence—a peculiar grace:
> But who, if he be called upon to face
> Some awful moment, to which Heaven has joined
> Great issues, good or bad, for human kind,
> Is happy as a lover, and attired
> With sudden brightness, like a man inspired;
> And through the heat of conflict keeps the law
> In calmness made, and sees what he foresaw.
> Or if an unexpected call succeed,
> Come when it will, is equal to the need.
> He who, though thus endued as with a sense
> And faculty for storm and turbulence,
> Is yet a soul whose master-bias leans
> To home-felt pleasures and to gentle scenes;—
> Sweet images! which, wheresoe'er he be,
> Are at his heart; and such fidelity
> It is his darling passion to approve;—
> More brave for this, that he hath much to love."

Many names of officers, both in the sea and the land service, still living or only recently deceased, who have distinguished themselves at once as skilful commanders and as ardent cultivators of science and learning, will occur to the memory of every reader.

CHAPTER IX.

LITERARY PURSUITS OF MERCHANTS:—SOLON; GUYS; DUDLEY; NORTH; RICARDO.

We will now return to civil life, from the higher walks of which we have already quoted several examples of an attachment to literary and scientific pursuits in the midst of much occupation, and the attainment of eminence at the same time in the world of letters and in that of politics. We shall find that the cares of ordinary business have also left time to many to earn distinction by their learning and their writings, as well as the toils and anxieties of state affairs.

Perhaps the earliest literary merchant we have on record is the celebrated Athenian lawgiver, Solon. Although descended from one of the most distinguished families in Athens, Solon found himself obliged, on setting out in life, to attempt the re-establishment of the decayed fortunes of his house by engaging in foreign commerce. After the manner customary in those days, he proceeded in person to distant countries along with the goods which he had to dispose of. To a mind such as his, however, the opportunities of an occupation of this kind were invaluable. He returned to his native country not only enriched by the success of his speculations, but fraught with all the learning and philosophy of the countries in which civilization had then made the greatest progress; and fitted to inform and control his fellow-citizens by the lessons of a new wisdom, made attractive by the charms of eloquence and poetry. He had sought, in the course of his travels, still more anxiously for knowledge than for wealth, and he had found both in abundance. When he re-appeared in his

native country, his fame had preceded him, and he was welcomed by all ranks as the fittest person to assume the government and regulation of the state. He accepted the call, and distinguished himself, as all our readers know, by the wise laws which he established, and the admirable ability and rectitude of his administration. But his love of literature and philosophic speculation still clung to him; and after the usurpation of Pisistratus had overturned the system of good government which he had reared, and the folly and ingratitude of his fellow-citizens compelled him to withdraw from Athens, we are told that he employed his old age in giving the last finish to some of his poetical compositions, especially his great work, entitled Atlantis, which unfortunately has not come down to us. Solon's fame, however, both as a poet and an orator, long survived among his countrymen, and some fragments of his poetry are still extant.

A French merchant, M. GUYS, has, in modern times, distinguished himself by his learned researches touching the geography and history of the country of Solon. Guys had spent the early part of his commercial life in Turkey, and it was while residing there that he conceived the idea of availing himself of the many opportunities his situation afforded him, to compare the existing condition of Greece, and the manners of its inhabitants, with the accounts handed down to us by the classic authors of its ancient state. His object was to ascertain what traces of the old times were still to be found, either in the character and habits of the people, or in the natural aspect and architectural monuments of the country. For this purpose, he repeatedly travelled over both the Morea and the islands of the Archipelago, with Homer and Pausanias in his hand, everywhere comparing what he observed with their descriptions, and those of other ancient authorities. Not satisfied with this anxious investigation of his subject, he did

not venture to commence the preparation of his projected work until he had, by long practice, obtained so much skill in the art of composition as gave him reason to hope that he should be able to make it, in all respects, worthy of the acceptance of the public. Keeping his materials by him for some years, he embraced several opportunities of exercising his pen upon lighter topics, producing, among other pieces, a discourse on the "Utility of Literary and Scientific Accomplishments to a Commercial Man," which he read before the Academy of Marseilles, where he now carried on business. At last he published, in 1772, his principal work, under the title of "Literary Travels in Greece," which immediately procured for him a distinguished reputation as a man of letters. The Greeks themselves, in particular, were so much flattered by the learning and talent which he had brought to the illustration of their usages and antiquities, that they sent him a diploma creating him a citizen of Athens. After this Guys produced various other performances, both in prose and verse, all of respectable merit, and left, at his death, a considerable number of manuscripts ready for publication; but he is principally remembered for his Literary Travels, of which he was preparing for the press a fourth and a greatly-enlarged edition, when he died in 1799, in his seventy-ninth year. He was an associate of the Institute of France, as well as member of various other literary institutions.

Our countryman Sir DUDLEY NORTH also began the world as a Turkey merchant. He was the third son of the fourth Lord North, who was a studious man, and the author of several literary works. In the characteristic and interesting memoir of Dudley which has been given us by Roger, the youngest of the family, and the biographer also of two others of his brothers, we are told that, having been placed at Bury to learn Latin, "he made but an indifferent scholar," which is imputed

partly to the brutal severity of his master, who used to "correct him at all turns, with or without a fault, till he was driven within an ace of despair and making away with himself," and partly to the circumstance of his having "too much spirit, which would not be suppressed by conning his book, but must be rather employed in perpetual action." It was "this backwardness at school," the author thinks, that probably determined his destination. "But the young man himself," he adds, "had a strange bent to traffic, and, while he was at school, drove a subtle trade among the boys for buying and selling. In short, it was considered that he had learning enough for a merchant, but not phlegm enough for any sedentary profession."

Accordingly, after having been sent for some time to a writing and arithmetic school, he was bound by his father to a Turkey merchant, upon the agreement which was then usual, that, after having been initiated in the business at home, he should be sent out to the Levant. "This merchant's business," however, adds his brother, "was not enough to keep a man employed, and, having left off rambling, much of his time lay upon his hands. He could not endure to be out of action or idle; therefore, to fill up his intervals, he fell to work at the packing press [the person with whom he boarded was a packer], and other business of that trade, by which he made himself a complete master of the mystery of that trade. This was not any loss of time; for that is one of the chief trades which the Levant merchants are concerned with, for the skilful packing their cloths sent into Turkey. The young gentleman took also a fancy to the binding of books, and, having procured a stitching-board, press, and cutter, fell to work, and bound up books of account for himself, and divers for his friends, in a very decent manner. He had a distinguishing genius towards all sorts of mechanic exercises."

After some time, he was sent out by his master as supercargo with an adventure to Archangel, where he was to ship another cargo for Smyrna, and then to take up his residence in the latter place as factor. "It was a hard case," says his biographer, "for a raw youth to embark in such a voyage, without company, or so much as a face in the ship that he ever saw before, and bound almost as far northward as Zembla, and to reside amongst and traffic with barbarous people, and then to return through all the bad weather the skies can afford. But he went not only willingly but ambitiously, and formalized upon nothing that led towards the end he most earnestly desired, which was to be settled as a factor in Turkey. His resolution was inexpugnable; and not only in this, but in many other instances of his life, he considered well what was best for him to do; and after that point once determined, he had no thought of difficulties; he was now master of his fortunes, and resolved, at all adventures, to advance them; and therein to use the utmost of his industry and understanding, leaving the rest to Providence."

This account sufficiently shows us the character of the young adventurer; and we find the same determination, activity, and alacrity to seize and make use of every opportunity of improvement, in all his subsequent proceedings. Even in the course of this trading voyage, he has an eye for everything worth observing that comes in his way; and keeps a regular journal of all that he saw and that befell him, which he transmits to London, in the form of letters, to his elder brother, Francis, afterwards the Lord Keeper Guildford. He even attempted, it would appear from what he states in one of these letters, to acquire some acquaintance, while in the ship, with practical seamanship. "I had thought," he writes, "to employ myself aboard by keeping an account of the ship's way, but am disappointed; for the master and mates, on whom that charge

lies, are a sort of people who do all by mechanic rule, and understand nothing, or very little, of the nature and reason of the instruments they use. And where that little happens, they are very shy of it; and, if at any time one speaks to them, they think they have a blockhead to deal with, who understands nothing; and they will hear no objection to their dictates. As for reasons and causes, they lie beyond their capacity; all that is not set down at large in their books, they account no better than damnable doctrine and heresy; their quotations are irrefragable, and not to be disputed." What he principally complains of, indeed, throughout the voyage, is the idleness in which he was obliged to pass his time. Having, on his return from Archangel, been detained for some time at Leghorn, he determined to visit Florence, about fifty-five miles off; upon which occasion he remarks, "Perhaps my friends may think this visiting of places no sign of good husbandry; but let it be considered that an idle person is subject to expense wherever he lieth; and the well-employment of time, and experience to be gained this way, may countervail some increase of charge." The long and minute detail he gives us of what he saw on this visit is highly curious, and shows satisfactorily enough that his "increase of charge" was not thrown away. He made use, too, he tells us, of the time he spent here and at Leghorn, to acquire some knowledge of Italian. "The language," he remarks, "is not difficult; and I find the little Latin I have to be an extraordinary help in attaining it."

He began business at Smyrna with a capital of not quite four hundred pounds, on the profits of which he lived thriftily, and "passed his time," says his brother, "for divers years, with a meagre income, and not promising much increase." Having afterwards, however, transferred his residence to Constantinople, he succeeded at last in reaping the fruits of his industry

and perseverance, and found himself gradually becoming a wealthy man. Here he showed, on every occasion, the same inquisitiveness and love of knowledge, the same activity and capacity of overcoming difficulties, which had characterized him from his boyhood. He not only made himself completely master of the political constitution and statistics of the country, but even acquired such a skill in the Turkish law, that, in common cases, he could both "advise himself," we are told, "and assist his friends." "I have heard our merchant say," writes his biographer, "that he had tried, in the Turkish courts, above five hundred causes; and, for the most part, used no dragomen, or interpreters, as foreigners commonly do, but, in the language of the country, spoke for himself." "For these," he continues, "and other purposes of his negociation, he had laboured to gain, and had thereby acquired, a ready use of the Turkish language, and could speak it fluently. I have heard him say, that for scolding and railing it was more apt than any other language; and he had used it so much in that way, that afterwards, when he was in England, and much provoked, his tongue would run into Turkish of itself; as if to such purposes it were his mother-speech. He told us he once composed a Turkish Dictionary, and showed the ordinary idioms and analogies of that language. He not only spoke, but wrote, Turkish very well." The Italian language, too, we are told, in another place, the merchant had acquired to perfection, and expressed himself as naturally, and as fluently in it, as if it had been his mother-tongue; "and it hath been observed, that no Frank ever spoke the vulgar Italian idiom so correct and perfect as he did." We have a proof, indeed, of his familiarity with this language, in a long and amusing letter, written by him to an Italian friend, which his brother has printed.

A passage, which occurs afterwards, presents us with another evidence of the zeal with which every oppor-

tunity of obtaining useful information was taken advantage of by this intelligent and enterprising person. "Our merchant had then residing with him a virtuoso, who was a good mathematician and draughtsman; and they together concerted a design of making an exact plan of the city of Constantinople, and carried it on till it came very near being completed. They took the liberty of measuring in the street a distance between two stations, which were two of their mosque towers, from which their priests cry to prayers; and with a theodolite they took certain angles at the corners of streets. And, in order to find the position and distances of all the towers and remarkable places, they went up the two towers which they had chose, and made their stations; and there, with the same instrument, marked the angles of each view by the bearings of every one of those places, and set off the same, upon a large paper, by lines: and then the proper intersections gave the true position of them all, in just proportion, according as the practice of such method is commonly directed. And then they fell to mapping the streets, partly by the guidance of those views, and partly by other observations."

So much (although more might be added) for what he contrived to learn while in Turkey, by means of what his brother calls his "furious curiosity, not without some penetration and aptitude to discern and apply what fell in his way, losing nothing that might be instructive to him." In returning to England, the vessel in which he sailed having touched at Alicant, on the east coast of Spain, he and some of his friends resolved to travel overland to Cadiz, rather than sail round by Gibraltar. "Our merchant," says his biographer, "was not ill qualified to travel in this country, and to converse in the great trading towns; for he spoke Giffoot very fluently, which is a corrupt Spanish. But, because the Jews write it in Hebrew characters (which he also could do) it is called Giffoot, or the language which the Jews

speak; so, having this dialect at command, he was his own interpreter." During the remainder of the voyage, with his characteristic activity, he amused himself by letting down bottles tightly corked into the sea, to try at what depth the cork would be driven in, or the bottle broken, by the increased pressure of the water.

Shortly after coming home he settled as a merchant in London, and was, in course of time, appointed, first a Commissioner of the Customs, and then a Lord of the Treasury. Having become also a member of Parliament, "although he was bred," says his brother, "in business abroad, and had little experience in the affairs of England, and in parliament none at all, yet he took the place of manager for the crown in all matters of revenue stirring in the House of Commons; and what he undertook he carried through, against all opposition, with as much assurance and dexterity as if he had been an old battered parliament man." Before this, we are told, he had set about learning algebra under the direction of a Mr. Dickenson, one of his brother Commissioners of the Customs. As his quaint biographer expresses it, "When they had leisure, they two were busy at *plus* and *minus*, convolution and evolution; and Sir Dudley was extremely pleased with this new kind of arithmetic, which he had never heard of before."

He had committed his thoughts to writing at considerable length upon different subjects, both during his residence in Turkey and since his return to England: but it was in 1691 that he first appeared before the world as an author, by the publication of a work entitled "Discourses upon Trade, principally directed to the cases of Interest, Coinage, Clipping, and Increase of Money." These discourses have been considered as placing Sir Dudley North at the head of the economical writers of the seventeenth century. They contain, according to Mr. M'Culloch, a much more able statement of the true principles of commerce than any that had then

appeared, and maintain all the great principles of commercial freedom with an intelligence and consistency that have not been surpassed in any work of succeeding times. "Unluckily," Mr. M'Culloch adds, "this admirable tract never obtained any considerable circulation. There is good reason, indeed, for supposing that it was designedly suppressed. At all events, it speedily became excessively scarce; and I am not aware that it has ever been referred to by any subsequent writer on commerce." It was, indeed, entirely unknown until Mr. M'Culloch some years ago chanced to recover a copy of it, from which he printed a small impression.

This eminent person, having taken a strong part on the side of the court in the reign of James II., lost both his seat in parliament and his place under the crown at the Revolution; "in consequence of which," says his brother, "hating idleness, he fell again to buying of cloth," which he had discontinued while he held his high employments. After a short time, however, he once more retired from business; but continued to employ himself in another way as actively as ever. He had always, we are told, "delighted much in natural observations, and what tended to explain mechanic powers; and particularly that wherein his own concern lay, beams and scales, the place of the centres, the form of the centre-pins, what share the fulcrum, and what the force, or the weight, bore with respect to each other; and, that he might not be deceived, had made proofs by himself of all the forms of scales that he could imagine could be put in practice for deceiving." "He was so great a lover of building, too," it is afterwards stated, "that St. Paul's, then well advanced, was his ordinary walk; there was scarce a course of stones laid, while we lived together, over which we did not walk. And he would always climb up to the uppermost heights. Much time have we spent there in talking of the engines, tackle, &c. He showed me the power of friction in

engines; for when a capstan was at work, he did but gripe the ropes between the weight and the fulcrum in his hand, and all was fast; and double the number of men at the capstan could not have prevailed against that impediment to have raised the stone till he let go. We usually went there on Saturdays, which were Sir Christopher Wren's days, who was the surveyor; and we commonly got a snatch of discourse with him; who, like a true philosopher, was always obliging and communicative, and in every matter we inquired about gave short but satisfactory answers." To this subject, indeed, Sir Dudley seems to have applied himself for some time with a zeal that hardly allowed him to think of anything else. "We had conversed so much with new houses," says Roger, on concluding a long detail of his brother's architectural investigations, "that we were almost turned rope-dancers, and walked as familiarly upon joists in garrets, having a view through all the floors down to the cellar, as if it had been plain ground." When in the country, they in like manner used to occupy themselves in trigonometrical surveys, observing which the country people sagaciously took them for conjurors, "pretending to survey a ground by views at two stations, without measuring a side or any part, but from one station to another."

All this while, although he had retired from commercial life, he still retained the punctual habits of a man of business, and even gave a considerable part of his time to occupations connected with his former calling. He had several laborious trusts, in particular, to superintend as executor, in the management of which he was as scrupulously exact and painstaking as ever he had been in keeping his own mercantile books. For these purposes he had one apartment in his house fitted up as a counting-room, where he reckoned with his tradesmen, paid and received money, and kept a servant or clerk, who was constantly employed, chiefly in copy-

ing, while he used another above it, as his brother expresses it, "to wilder in his accounts; and his wife used to wonder how it could be that he had so much to do there." At one time, we are told, when the Custom-house books, having got into disorder, were brought there for him to arrange, "he wallowed so much in them, and with so much application, that his wife was afraid he would have run mad." "There also," adds his gossiping but lively and graphic biographer, "he read such books as pleased him; and (though he was a kind of a dunce at school) in his manhood he recovered so much Latin as to make him take pleasure in the best classics; especially in Tully's Philosophics, which I recommended to him."

We cannot afford, however, to accompany our active merchant through the long catalogue of his employments and amusements; his vinegar-making, and his other "operations and natural experiments;" his travelling through the country on a "grave pad" of his brother's, with his predilection for the "very sure and easy, but slow" pace of that "sage animal;" his "hewing and framing of wood works;" his ingenious construction of a pair of bellows, for a smithy, out of a leather skin and a few pieces of elder; and his toils at the anvil, which he "followed so constantly and close," that, when his wife "came to call him to dinner, she found him as black as a tinker," and "he," says his brother, "coming out sometimes with a red short waistcoast, red cap, and black face, the country people began to talk as if we used some unlawful trades there, clipping at least; and, it might be, coining of money—upon which we were forced to call in the blacksmith and some of the neighbours, that it might be known there was neither damage nor danger to the state by our operations." For a full account of all these matters, as well as of the "turning and planing," which formed the more refined afternoon's employment of the two brothers, and for which they

"sequestered a low closet," and a description of the "way-wiser," or road-measurer, which Roger invented, we must refer the reader to the latter's own faithful and amusing pages. We must find room, however, for the concluding sentences of the narrative, conveying as they do a forcible lesson to vulgar ambition, and an illustration of how easily happiness may be found even in the narrowest sphere, and at the humblest employment, if it be but sought for in a right spirit. "In our laboratories," Roger remarks, "it was not a little strange to see with what earnestness and pains we worked, sweating most immoderately, and scarce allowing ourselves time to eat. At the lighter works in the afternoon, he hath sat, perhaps, scraping a stick or turning a piece of wood, and this for many afternoons together, all the while singing like a cobbler, incomparably better pleased than he had been in all the stages of his life before. And it is a mortifying speculation, that of the different characters of this man's enjoyments, separated one from the other, and exposed to an indifferent choice, there is scarce any one but this I have here described really worth taking up. And yet the slavery of our nature is such, that this must be despised, and all the rest, with the attendant evils of vexation, disappointments, dangers, loss of health, disgraces, envy, and what not of torment, be admired. It was well said of the philosopher to Pyrrhus: 'What follows after all your victories? To sit down and make merry. And cannot you do so now?'" This is a little rhetorically, perhaps, and somewhat too strongly spoken to be taken literally; and, certainly, to spend life in nothing but trivial employments would not be to spend it either happily or worthily; but if it be understood as merely expressing and inculcating the real superiority of an active and healthy exercise of mind and body, in individual or domestic industry, the pursuit of knowledge, and such simple, and generally accessible enjoyments as we have

been contemplating, over the hot and exhausting chase after wealth or power in which it is usual for men to waste their strength, it will not be far from a correct appreciation of the constituents of human happiness.

We have dwelt the longer on the life and character of Sir Dudley North, both because he affords us one of the very best examples to which we can refer, of the successful pursuit, by the same individual, of business and of philosophy, and because, fortunately, his history and habits have been transmitted to us with unusual fidelity and fulness. To his name might be added those of many others of his countrymen, eminent like him at once in the walks both of commerce and of literature. We will only mention that of the late Mr. RICARDO. This gentleman, in the course of not a long life, for he died at the age of fifty-one, amassed a large fortune by his mercantile skill, activity, and attention to business, after having begun the world with little except a character for integrity and talent; and secured for himself not merely a respectable reputation as a writer, but, in the important science to which he devoted himself, a place among the very first of his age. We cannot here enter upon any examination of his peculiar doctrines, and we express no opinion respecting the extent to which they may be well founded or may require limitation. But, whatever difference of sentiment may exist as to this point, there can be none as to the ability and ingenuity which their author always displays in unfolding and supporting them, and that originality of view which marks all his works, and has placed him at the head of a new and distinct school of inquirers in this department of philosophy. It has been said that Mr. Ricardo's attention was not directed to political economy till somewhat late in life; and a story has been told about his accidentally finding a copy of the "Wealth of Nations" one day at the country-house of a friend, and immediately purchasing the book, reading it through

with great eagerness, and resolving to dedicate himself thenceforth exclusively to the study of the subject with which he had thus for the first time become acquainted. But this anecdote has been contradicted on better authority, and is not in itself very probable; for it is not likely that a mind, such as that of Ricardo, occupied as it was every day among the very matters to which the science in question especially refers, would be long in having its attention drawn to the principles of that science. Be this, however, as it may, he did not appear as an author till 1809, when he published his pamphlet entitled "The High Price of Bullion, a Proof of the Depreciation of Bank Notes," which immediately excited general attention and went eventually through four editions. He was at this time in the thirty-seventh year of his age, and, we believe, actively engaged in the pursuits of business. He continued to write and give to the world a succession of productions on his favourite subject till his death in 1823. His great work, "The Principles of Political Economy and Taxation," appeared in 1817, two years after which time he was returned to Parliament, where he highly distinguished himself, especially in all discussions relating to finance and commerce.

CHAPTER X.

LITERARY PURSUITS OF BOOKSELLERS AND PRINTERS:—SOLOMON GESNER; ALDUS MANUTIUS, PAUL, AND ALDUS THE YOUNGER; R. STEPHENS; H. STEPHENS; SCAPULA; COLINÆUS; BADIUS; FROBEN; OPORINUS; RUDDIMAN; BOWYER; NICHOLS; RICHARDSON.

MANY of our readers are probably familiar with the English translation of the popular German work, the "Death of Abel." SOLOMON GESNER, the celebrated author of this production, and of others written in a similar style that rank high in the literature of his native country, carried on the business of a bookseller, as his father had done before him, in his native town of Zürich, in Switzerland. In his case, however, as in that of the Dutch poet, Vondel, whom we have already mentioned, the cares and interruptions of business were, during the latter part of his life, rendered less annoying by the attention of his wife, who charged herself with the principal management of his commercial concerns, that he might have more leisure for literature. But it was amid the drudgery of the shop that almost all his earliest studies were carried on, and his literary taste nourished. We are told that Gesner was accounted a dunce by his first schoolmaster, who predicted that he never would get beyond reading and writing; and yet the person who was thus unsuccessful in developing, or even discerning, the talents of the future poet, was no other than the celebrated Bodmer, who afterwards became an eminent poet himself. This anecdote shows that even genius will not always discover genius in another; although possibly some may think that Bodmer must have been but an indifferent teacher, whatever he was in another capacity. Young Gesner was

afterwards sent by his father to the house of a clergyman in the neighbourhood, who, having probably no poetical faculty of his own, had more leisure to attend to the intellectual character of his pupil, and soon drew forth from the condemned dunce no doubtful indications of the light that was hidden within. But the young poet was after some time removed from the care of this congenial or judicious instructor, and despatched to Berlin, to take up his abode with a bookseller of that city in quality of his apprentice or shop-boy. Here he was of course surrounded by books; but either disliking the business, or not finding that it left him sufficient leisure to derive much advantage from the treasuries of knowledge that were within his reach, he soon abandoned it, and went into lodgings, with the view of supporting himself by poetry and painting—for he had already, without having any one to give him lessons, begun to apply himself also to the latter art. In this scheme he encountered at the outset the difficulties which naturally beset one circumstanced as he was. There was no deficiency of talent, but a sad lack of experience, and ignorance of many things that a person more regularly instructed could not have failed to know. Having shown his verses to some of his literary acquaintances, he was told that they were so awkwardly constructed that he certainly never would be a poet. His paintings were still more literally the efforts of his own unaided genius than even his poetry. Here he had neither any model to imitate, nor was even acquainted with the elementary rules and most common methods and processes of the art. He had covered the walls of his humble lodging with landscapes, and he one day prevailed upon a painter of some reputation and talent, who resided in the city, to come and see what he had done. His visitor had taste enough to discern the genius that animated many parts of his strange and lawless performances; but was not at all

surprised, when, upon asking him after what models he worked, he was told that he had no models, and that the whole was merely the inspiration of his own invention. He was somewhat amused, however, when Gesner, in his ignorance of the way of managing his oil-colours, complained to him that his pictures never dried. The end of all this was, as might have been anticipated, that the runaway was soon forced to throw himself once more upon the protection of his friends, and to return to the business for which he had been originally intended, in which he became first the partner, and eventually the successor of his father. He did not, however, relinquish literature: and, although his first productions were not very flatteringly received, he persevered in writing and publishing until he had established for himself a distinguished reputation. He began, too, after some years, to add to his other employments that of an engraver, having already improved his taste and skill in painting by the study of the great masters of the Flemish school, of whose works his father-in-law possessed a valuable collection, the inspection of which had had the effect of strongly exciting his early ardour. The remainder of Gesner's life was divided between his business, his duties as a public man (for he had now become a member of the legislative council of his native city), and those several intellectual occupations and elegant arts in each of which he had attained so honourable a celebrity. His works were not only in general published by himself, but often embellished with engravings by his own hand from his own designs. Many of them were still more popular in other parts of Europe, especially in France, than even in Germany; and, among other testimonies of affection and respect which he received from his foreign admirers, he was presented with a gold medal by the Empress Catherine of Russia. He died of an attack of apoplexy, in 1788, in the fifty-eighth year of his age.

A pretty long catalogue, indeed, might be given of literary booksellers and printers, among whom, in former times especially, even profound learning was not uncommon. At the head of this list would stand the celebrated Aldus Manutius (properly Aldo Manuzio), one of the earliest of the Italian printers, whose services to literature, and we may add to civilization, it is scarcely possible to overrate. Manutius, who was born in 1447, received a learned education, and passed the early part of his life in literary pursuits, and in the society of some of the most distinguished scholars of his time. He was forty years old before he set about the establishment of his printing-office at Venice; and it was some years later before the first production of his press made its appearance. The period therefore of his labours as a printer, as he died at the age of sixty-eight, only extended over about twenty-five years; and even this space was broken in upon by various difficulties and interruptions, arising from his limited resources and the distracted condition of the country. The latter cause, on one occasion, obliged him to retire altogether from Venice for above a twelvemonth; when not only was his property pillaged during his absence, but he himself, on quitting the city of Milan, in which he had taken refuge, was seized as a spy, and consigned to a prison, from which he only obtained his deliverance through the good offices of one of his friends, who happened to be vice-chancellor of the Milanese senate. All this being kept in mind, it is impossible not to be astonished at the immense professional labours of this first learned printer. During these twenty-five years, partially disturbed as they were, and in spite of the scanty means by which his spirit of enterprise was frequently cramped and restrained, he gave to the world editions of the chief of the Greek and Roman authors then known to be in existence—transcribing them, in almost every instance, from manuscripts which

it required the utmost learning, sagacity, and patience to decipher; and often evincing eminent critical acumen in the settlement of the text by the selection of the right one among various readings. He was, in fact, the editor of nearly every work which he published; and, in the performance of his duties in that character, he had difficulties to struggle with and surmount, with which those that have fallen to the share of the generality of his successors are not to be compared. And yet it was in these circumstances, as we have said, that he produced, in the course of a few years, the first printed editions of many of the Greek and Roman classics; thus entitling himself to the gratitude of all succeeding times, as not only the author of the earliest general diffusion of this most precious literature, but in all probability the preserver of much of it from irretrievable destruction. Had Manutius not exerted himself as he did to rescue the writings in question from their insecure existence in a few half-defaced and rapidly perishing manuscripts, and to bestow on them a sure immortality through the printing-press, we know not how many of those of them we now possess it might never have been our fate to look upon, nor how much slower that march of civilization might have proceeded which owed to their wide-spread influence so much both of its excitement and of its conquests. For, whatever difference of opinion there may be as to the present and future importance of the productions of Greek and Roman literature in guiding and sustaining the intellectual progress of the world, it can hardly be disputed that Europe never would have made the advancement it did in the course of the fifteenth and sixteenth centuries but for them, and that it is to their inspiration that we owe, in a great measure, at least the beginnings of our existing refinement. But if this be so, it is to Manutius that no little of our gratitude is due; since, had it not been for him, some of the greatest, very

possibly, of those ancient poets, orators, historians, and philosophers, would have written, both for us and for our fathers, in vain.

But his admirable labours, in restoring and preserving the works of others, did not by any means form the only occupation of this great father of the typographical art in Italy during those twenty years. Beside carrying through the press the productions of several of his contemporaries, he found time for the composition of several works of his own, all of them full of erudition, and some of considerable magnitude. Among these may be mentioned grammars of the Greek and Latin languages, and a Greek and Latin dictionary in folio, being the earliest work of the kind that had been given to the world. He also founded at his own house a literary association, known by the name of the Aldine Academy, which obtained great celebrity, and reckoned among its members the celebrated Erasmus, Cardinal Bembo, and several others of the most distinguished persons of that age. During the first years, too, of his residence at Venice, and while he was making preparations for commencing business as a printer, he delivered several courses of lectures on Greek and Roman literature.

Aldus Manutius died in 1515; but he left a son named Paul, who afterwards distinguished himself as much as his father had done, both as a printer and a man of letters. Many of the works which proceeded from his press were enriched by learned commentaries from his own pen. When the Venetian Academy was founded, in 1558, PAUL MANUTIUS was appointed Professor of Eloquence, and director of the printing establishment; but that association continued in existence only for three years. He was afterwards induced to settle as a printer at Rome, on the invitation of the Pope; and, although he still kept his press at work in Venice also, the last years of his life were spent in that

city. He died there in 1574, leaving a son, commonly called the younger Aldus, who, although a person of some learning and talent, did not sustain the reputation of his family in either of the two departments in which its preceding members had acquired so much and such well-merited distinction. Under him, the printing-office fell into discredit and decay; and he at last gave up the business to one of his workmen.. He died, it is said, from the effects of a surfeit, in 1597; and the valuable library, collected by his father and his grandfather, was soon afterwards seized upon by his creditors, and sold to pay his debts.

Contemporary with the Manutii in Italy, were the Estiennes or STEPHENSES in France. Of this family, celebrated as printers for nearly one hundred and fifty years, about a dozen members are enumerated as distinguished for their literary attainments; but we can only afford to notice the two most eminent names in the list, the first Robert and his son Henry (sometimes distinguished from his grandfather of the same name as the *second* Henry). The former was born in Paris in 1503, and commenced business in that city as a printer on his own account about the year 1526. He had before this time acted as chief manager of the establishment of his stepfather, Simon de Colines, and had, in that situation, superintended an edition of the Vulgate (or Latin) version of the New Testament, the publication of which gave great umbrage to the Doctors of the Sorbonne, or Theological College, and first drew upon him that suspicion of an inclination towards Protestantism which he afterwards justified by his formal abandonment of the Catholic faith. He was not only the most distinguished printer, but one of the most learned scholars, of his time, as his works, and especially his great Thesaurus of the Latin language, amply testify. All the works which proceeded from his press are remarkable both for their extreme beauty of execu-

tion and their almost immaculate correctness. In order to secure for them this latter quality, he was wont, we are told, in many cases to exhibit the proofs for public inspection, and to offer a reward for every error any one should detect in them. One of his editions of the Greek New Testament is known by the strange name of the "Pulres" edition, which was given to it in consequence of the word "Plures" in the Latin preface being so printed,—an error which was long supposed to be the only one in the work, till a more diligent examination in recent times discovered four others in the Greek text.

The supposed religious opinions of Robert Stephens exposed him, during a great part of his lifetime, to incessant annoyance and menace from the zealots of the Catholic church, from whose hostility he was with difficulty protected even by the patronage of the king, Francis I. When Francis died, Stephens felt that the security he had hitherto enjoyed in Paris was gone with his royal patron; and after a short time he retired to Geneva. He resided in that city for several years, carrying on his business as a printer, and died there in the year 1559, at the age of fifty-six. From many honourable testimonies that have been borne to the learning of this great printer, it is sufficient to quote the eulogium of the celebrated De Thou, who affirms that France and Christendom owe a deeper debt of gratitude to him than to their greatest captains; and that he has done more to immortalize the reign of Francis I., than all that monarch's own most famous exploits.

Henry Stephens, the eldest son of Robert, was one of the most learned men that ever lived, and so voluminous an author, that, if he had spent his life in writing books, he would have left us enough to admire in the evidence of his industry and fertility. But, instead of this being the case, his days were passed

partly amidst the toils of a laborious occupation, and partly under the pressure of misfortune and penury, and in wandering about in quest of mere subsistence. He was born in 1528; and after having been carefully educated, and having travelled in Italy, England, and the Netherlands, he appears to have accompanied his father when he left Paris for Geneva. He soon, however, returned to the former city; and, although known to be attached, like his father, to the Reformed faith, contrived to obtain permission to settle there as a printer, about the year 1557. From this time there continued to issue from his press a succession of editions of the classic writers, and other works, not only printed with the greatest care and correctness, but abounding in new and improved readings, which the labours and ingenuity of the editor had discovered, and almost always accompanied by learned prefaces and commentaries from his own pen, which are read by scholars to this day with profit and admiration. But the great work, to the compilation of which he devoted himself with especial ardour and assiduity, was his celebrated Thesaurus, or Dictionary of the Greek Language. This extraordinary performance was the fruit of twelve years of laborious application. The undertaking, however, had completely exhausted the pecuniary resources of the unfortunate author; and nothing could have saved him from ruin, except a much more rapid sale of the work than its magnitude, and necessarily high price, could in almost any circumstances have allowed. He struggled with his difficulties for some years, and might, perhaps, have eventually succeeded in surmounting them; when his hopes were on a sudden extinguished by the appearance of a rival publication, professing to be the work of JOHN SCAPULA. This person had, it appears, been employed as a clerk, or corrector of the press, in Stephens's office, during the printing of the Thesaurus; and the story commonly told is, that, while

acting in this capacity, he had secretly applied himself, with a base industry, to the compilation of an abridgment of that great work, which he was thus enabled to bring into the market in sufficient time to ruin the sale of the larger and dearer publication. As it seems unquestionable, however, that the first edition of Scapula's Dictionary did not make its appearance till seven years after the publication of that of Stephens', it is unnecessary to suppose the former to have acted quite so treacherously as is generally alleged, seeing that seven years were surely sufficient to finish an abridgment of a work which the original author had taken only twelve years to compile; and that, therefore, Scapula's performance may be very easily conceived to have been begun, not while he was superintending the printing of his master's Thesaurus, but some time after its publication. We do not mean to dispute either the justice of the charge of plagiarism which has been brought against Scapula, or the fact, that the appearance of his book, notwithstanding the time which elapsed between its publication and that of the work from which it was stolen, considerably injured the sale of the latter. But the truth is, that this abridgment, looked upon even as such, was a performance of very considerable ability, and much more commodious for consultation in ordinary cases than the larger work. It has ever since its appearance ranked as one of the most valuable auxiliaries to which recourse can be had in the study of Greek; and has, without doubt, contributed essentially to the diffusion of a knowledge of that language—a circumstance which makes one learned writer observe, that Scapula has done at least as much service to scholars in general as he did injury to his master; while another goes the length of maintaining, with more sensibility, it will be thought, to the interests of Greek learning than to the principles of morality and honourable conduct, that the glory of the author of so

excellent a work ought in nowise to suffer diminution from any incorrectness of conduct he may have been guilty of in the preparation of it. It is not improbable that many copies of the large Thesaurus still remained unsold when the abridgment came out; and its appearance would completely put an end to the idea of a second edition of the original work, however necessary to meet the great expenditure that had been incurred.

Stephens continued, for some years after this misfortune, to labour with unwearied diligence both as a printer and as an author, sustained partly by the patronage and promises of the king, Henry III., whom he soon found, however, to be more liberal of profession than performance. As a last resource, therefore, he left Paris, where the loss of his wife, to whom he was tenderly attached, had recently added to his calamities, and spent several years in wandering from one city to another, in the constantly-disappointed hope of finding some means of re-establishing his ruined fortunes. We find him at one time at Orleans, then again at Paris, and then successively in Germany, Switzerland, and Hungary. At last, having fallen sick at Lyons, he died there in an almshouse, in the year 1598, at the age of seventy.*

The history of this great scholar has been often quoted as a signal illustration of the ill fortune not unfrequently attendant upon a life devoted to literature. Undoubtedly,

* A lively sketch of *Henri Estienne* has been given by a late writer in the *Quarterly Review* (No. 186, for September 1853), in the course of an interesting article on the *Diary* of his learned son-in-law, Isaac Casaubon. The following short extract is illustrative of our subject:—"He travelled, as was customary before the days of passable roads, on horseback, but on a high-spirited and mettlesome Arab, and not on the spavined hacks of the post-houses. These seasons—for his teeming imagination could not be idle—were claimed by his muse. An epigram, or a prologue, or a soliloquy, was composed and written down without drawing rein." In a note the writer adds:—"His father before him is supposed to have improved these equestrian hours. It was Robert Estienne that

learning and genius are not exempted from the disappointments and sorrows of this world, any more than ignorance; and sometimes the stroke of misfortune is more keenly felt from the sensibility which high intellectual cultivation has conferred upon the sufferer. In the mere pursuit of wealth, too, it may be that the disinterestedness and comparative forgetfulness of self, which an attachment to letters has a tendency to beget in him who is under its influence, shall sometimes leave him a little way behind a more eager competitor, by allowing him to overlook opportunities of which a more unscrupulous man would take advantage, or seducing him to turn aside after speculations promising him more of glory than of profit. This is the most and the worst that can be said as to the natural tendency of learning to bring misfortunes upon the head of its possessor. But it is no great disparagement of mental cultivation, which is prodigal of so many far higher and better rewards, to say, that it has no particular tendency to put money in a man's pocket, or even that it may sometimes chance to impede in a slight degree the mere accumulation of property by the affection which it creates for richer sources of enjoyment. If it should not bring overflowing wealth, which, at best, is but one of the means of happiness, it will bring happiness itself—wealth for the mind, if not for the purse. And as for the other accu-

divided the New Testament into verses, and his son Henri tells us that it was effected during a journey from Lyons to Paris *inter equitandum*. The phrase has been commonly supposed to signify that he performed the task upon horseback, but Michaelis thought it might only mean that he did it between the stages, while taking his ease at his inn. The first and literal interpretation is doubtless correct. John Wesley read hundreds of volumes as he ambled upon his nag from one preaching station to another; and, however difficult it might have been to pencil figures upon the margin of the New Testament when mounted upon the fiery Arab of Henri, it might easily have been accomplished upon the hack of Robert, which was probably as steady as his desk."

sation, that the more a man's nature is refined by education and a taste for knowledge, the more sensibly will he feel such calamities as may befall him, it amounts merely to saying, that the more intense the life, the more delicate and shrinking the sensibility,—the higher the elevation, the more dangerous the fall. If it be held that our nature approaches nearest to its perfection when it most resembles that of a tortoise or a vegetable, then, indeed, intellectual cultivation may be held to be pernicious and unwise. But it should not be forgotten that even in the world's ordinary pursuits and business, science and literature must give their cultivators, upon the whole, at least as many and as important advantages as they can possibly deprive them of. There is no probability at all in the supposition, that the possession of superior learning has generally had the effect of preventing its owners from succeeding in the world. On the contrary, it has most likely, in ninety-nine instances out of every hundred, materially contributed to their success, and procured for them a degree of advancement to which the generality of their less accomplished associates never ventured even to aspire. We might refer for proof to many of the names we have already had occasion to mention in these pages, as well as to many others we have yet to notice. The misfortunes of a man whose life has been principally devoted to literary pursuits make a more touching narrative than those of him who has been thrown out in the more vulgar scramble for the good things of this life; and such stories are therefore fondly repeated and remembered. But, although good enough as stories, they are worth little as arguments; seeing that there is not one of them that might not be easily matched by another that would tell, if not as pathetically, yet just as forcibly, on the opposite side of the question. Upon this view of the matter, however, we have no inclination to dwell; for it is not chiefly on the strength of such considerations that

we would recommend the pursuit of knowledge. It is profitable to a far higher end than the mere advancement of its votaries in worldly wealth; although in that, too, it may fairly claim to be regarded as naturally and ordinarily an ally and not an adversary. And as for the great scholar, the calamities of whose latter days we have just recorded, the generally unfortunate destiny of the learned is not the lesson to be drawn from his history. His family had risen by their learning, had through that acquired both wealth and distinction, and owed to nothing else the station they long held at the very head of their profession in Europe and in the world. Even he himself had flourished by the same means, in affluence and in honour, for many years; and if one of his undertakings at last turned out unsuccessful, partly through the unfair conduct of another, and partly, let it be allowed, from the nature of the speculation itself, into which a mere printer, who cared for nothing but his money, would not perhaps have so rashly adventured, it was, after all, but one instance of the evils of learning among many illustrations of its advantages. Nor should we throw out of view the glory of the otherwise unprofitable enterprise, the feeling of triumph in its achievement, which all it had cost could not take away, and the anticipation of that award of posterity on the finished work, which the knowledge of the ruin it had brought on its illustrious projector would only make more cordial and generous.

To the Manutii and the Stephenses we might add the names of many other learned printers of the first age of the art; for example, that of Simon de Colines (in Latin, Colinæus), mentioned above, who after having been in partnership with the first Henry Stephens, the grandfather of the author of the Thesaurus, married his widow, and carried on the business, and who was profoundly versed in ancient literature—that of Badius (often called Ascentius, from Asche, near Brussels, the place of his

nativity), also a Parisian printer, who was the author of several learned works, and whose daughter, Petronilla (or Perrette), the wife of Robert and the mother of the great Henry Stephens, was so erudite a lady that she is said to have taught both her children and her servants Latin, and to have permitted no other language to be spoken in the family—that of FROBEN, who established his press at Basle in Switzerland, and was so highly esteemed by Erasmus for his great learning, that this celebrated person was induced to take up his residence there in order to have his works printed by so able a scholar—and that of OPORINUS, the successor of Froben in the same city, many of the works published by whom, besides being remarkable for their correctness, are illustrated by his own prefaces and notes.

Of names belonging to later times and to our own country, one of the most distinguished is that of the very learned THOMAS RUDDIMAN, who carried on a considerable business in Edinburgh, during the early part of last century. The editions of the classical authors that issued from his press are in general printed with very great accuracy, and often exhibit new readings and amendments of punctuation, in the highest degree creditable to the ingenuity and erudition of the editor; who besides found leisure for the preparation of several works of his own, among which may be particularly mentioned a Latin Grammar in two volumes, one of the most learned and elaborate performances in the whole range of philology.* Ruddiman held at the same time the office of librarian to the Faculty of Advocates in Edinburgh (in which he was succeeded by the celebrated David Hume), and was also the publisher of a

* A new edition of this grammar has within the present century been published in Germany under the superintendence of one of the most eminent scholars of that country; "*Thomæ Ruddimanni* Institutiones Grammaticæ Latinæ; curante *Godofredo Stallbaum.*" Lips. 1823. 2 tom. 8vo.

newspaper, which he had established himself, and which still exists. Among recent English printers the well-known WILLIAM BOWYER long presented a conspicuous example of that accomplished scholarship, united to the most diligent habits of business, which used to be so common in the good old times of the art. Nor ought we to forget his partner and successor, the late Mr. JOHN NICHOLS, whose antiquarian knowledge, and extensive labours in different departments of literature, justly entitle him to a high place among the modern ornaments of his profession.

The father of RICHARDSON, the great novelist, was a joiner; and he himself, after having been taught reading and writing at a country school, was bound apprentice to a London printer, named Wilde, with whom he served for the usual period. Soon after his apprenticeship had expired, he found employment as foreman in a printing-office; and in this situation he remained for five or six years with scarcely a hope of any higher advancement. By the assistance of several friends, however, whom his industry, intelligence, and amiable manners had secured for him, he was at last enabled to enter into business on his own account; when he established himself in Salisbury Court, Fleet Street, and speedily acquired such a position as justified the expectations that had been entertained of him. Meanwhile his literary tastes, and even some indications he had given of his talents as a writer, had become known among his acquaintance, and he was employed on various occasions by the booksellers in the composition of prefaces and dedications for works which they were bringing out. At last they proposed to him the writing of a volume of Familiar Letters; and it was this circumstance, we are told, which suggested the idea of his "Pamela," the first production by which he obtained any distinction as an author. He was already in his fifty-second year when he commenced the composition

of this work. And yet such was the eagerness with which he applied himself to it, that he finished the two volumes in as many months. It met, as is well known, with the most extraordinary success, having gone through five editions in the course of a year. The author, however, was not left to enjoy his popularity undisturbed; for, not to mention a good deal of severe criticism to which the conduct and moral tendency of the novel were subjected, the manner of the author was attacked with powerful ridicule by the celebrated Fielding in his "Joseph Andrews." The effect of this satire was so keenly felt by Richardson, that he determined to show the world that he could write as well in another style, in proof of which he produced a continuation of the work under the title of "Pamela in High Life," which was far from securing a continuation of its predecessor's popularity. He was not discouraged, however, by this failure, but only instructed by it in the true path in which he was fitted to excel. He returned to his studies, and after some years appeared again as an author by the publication of the two first volumes of his greatest work, his "Clarissa Harlowe." The success of this production was immense. Appearing as it did in parts, it excited the public curiosity in the highest degree. During the progress of its publication, and when it was translated into French, it raised its author in the estimation of continental critics to the first rank among the writers of the age. Richardson was in his sixtieth year when he gave this work to the world; but he had not yet concluded his literary career. Four years afterwards he appeared again before the public with another performance, his "Sir Charles Grandison." This novel (like its immediate predecessor) extends to the unusual length of seven volumes; and it has been asserted that the author's original manuscript, had it not been subsequently curtailed, would have made a book of three times the size. This is hardly, however,

to be taken as a proof of the industry of the writer. Prolixity was the besetting fault of Richardson; his works would have cost him more time and labour had he made them shorter. With his fulness of matter, and facility of invention, it was comparatively easy for him to spread his story over any number of pages. What he most wanted was the art of rejection. Richardson is undoubtedly one of the very greatest of our writers in the department to which his works belong; but on the Continent he is very generally considered as standing at the head of his whole class, without a rival. He has some qualities in which he has never been excelled; but his works, in their original language, are too defective to permit us to rate him so high as this. Perhaps some of their faults do not appear so strongly under the disguise of translation; and amongst those most likely to be thus softened, we should especially reckon the general inelegance and extreme slovenliness of the style. This is a fault which the author, in all probability, could have materially corrected, had he taken the requisite pains.

He published nothing of any importance after his "Sir Charles Grandison;" but it is important to notice, that his literary labours did not interfere with his attention to business, or impede his commercial success. In 1754 he was chosen Master of the Stationers' Company; and some years after he purchased half of the patent of king's printer. He had by this time amassed a respectable fortune, which enabled him to indulge himself with the luxury of a country residence, at Parson's Green, where he spent the latter part of his life in the society of his friends, and the enjoyment of the public admiration which his writings had procured for him. He died in the year 1761, at the age of seventy-two. More than forty years after his death a selection from his Correspondence, with an account of his Life, in six volumes, was published by Mrs. Barbauld.

CHAPTER XI.

BOOKSELLERS AND PRINTERS CONTINUED:—W. HUTTON; R. DODSLEY; ALMON; CRUDEN; THE PANCKOUCKES; ROTHSCHOLTZ; BAGFORD; AMES; HERBERT; PATERSON.—PURSUIT OF LITERATURE IN OTHER TRADES:—WALTON; DEFOE; LILLO.

WILLIAM HUTTON was born in 1723, in the town of Derby, where his father was a working woolcomber, burthened with a large family, for whom his utmost exertions scarcely sufficed to procure subsistence. "My poor mother," says his son in the interesting account he has left us of his life, "more than once, one infant on her knee, and a few more hanging about her, have all fasted a whole day; and when food arrived, she has suffered them with a tear to take her share." Of his mother, Hutton always retained the tenderest recollection. After a long endurance of this struggle, she died when he was only in his tenth year, and he and his brothers and sisters were left to the charge of their father, who, now become almost reckless from continued misfortune, and loosened as it were from his chief stay, soon made matters worse than ever by taking to the alehouse, and often literally leaving his children to the mere mercies of chance. "At one time," says Hutton, "I fasted from breakfast one day till noon the next, and even then dined upon only flour and water boiled into a hasty-pudding." His father appears to have been a man of a strong understanding, but of violent passions, over which he had little command. Notwithstanding his own dissoluteness, he was a despotic disciplinarian in regard to his children, and was wont to correct their slightest faults with terrible severity. This and the

rest of his conduct procured him their fear, but little of their affection.

In the midst of all this misery their education could scarcely fail to be but indifferently attended to. In fact, even if they had been kept at school, the instructions



WILLIAM HUTTON.

they received there could have availed little against such utter domestic neglect. The schoolmaster can seldom do much if he has not an auxiliary at home. William tells us that he was sent, when five

years old, to a "Mr. Thomas Meat, of harsh memory; who often," he adds, "took occasion to beat my head against the wall, holding it by the hair, but never could beat any learning into it; I hated all books but those of pictures." He continued his attendance, however, for about two years, when he was taken away, and, although only a child of seven years old, sent to work at a silk mill.

Tender as was the age of many of his companions here, he was the youngest and least of them all; being indeed too short to reach the engine, in consequence of which a pair of high pattens was fixed on his feet by the superintendent, which he dragged about with him for a year. He gives a melancholy account of his sufferings in this situation. "I had now," says he (and the reader will remember what a mere child he still was), "to rise at five every morning during seven years; submit to the cane whenever convenient to the master; be the constant companion of the most rude and vulgar of the human race, never taught by nature, nor ever wishing to be taught." His master at last, he tells us, having on one occasion made a wound on his back while beating him, struck it, in administering a succeeding punishment, with the point of his cane, which brought it into such a state, that a mortification was apprehended.

He arrived at the close of this weary bondage in his fourteenth year, when he was bound apprentice again for seven years more to a brother of his father, a stocking-weaver at Nottingham. This person, though a man of regular habits of life, and kept pretty much in awe by a wife, who, on pretence of enforcing the duty of temperate living, half-starved both him and his apprentices, seems to have had naturally not a little of the violent and tyrannical disposition of his family, which would occasionally break out in an unaccountable storm. His nephew, now a youth of

seventeen, and beginning to be conscious of approaching manhood, had been about three years in his house, when, having one day failed in finishing a piece of work he had been set to, he was first scolded by his uncle for his neglect, and then beaten by the enraged man with merciless severity. The disgrace was too much for him to forget. He watched his opportunity and fled from the house, taking with him his clothes in a bundle, and two shillings from a larger sum which he found in his uncle's desk, being without another penny in the world.

His own tale of this forlorn adventure is interesting and pathetic in the extreme. The first night he slept in the fields. The whole of the next day he continued his wanderings, scarcely knowing in what direction, and almost utterly without object or hope. "Arriving the same evening," the narrative then proceeds, "within the precincts of Lichfield, I approached a barn, where I intended to lodge; but finding the door shut, I opened my parcels in the fields, dressed, hid my bags near a hedge, and took a view of the city for about two hours, though very sore-footed. Returning to the spot about nine, I undressed, bagged up my things in decent order, and prepared for rest; but, alas! I had a bed to seek. About a stone's cast from the place stood another barn, which perhaps might furnish me with a lodging. I thought it needless to take the bags while I examined the place, as my stay would be very short. The second barn yielding no relief, I returned in about ten minutes, But what was my surprise when I perceived the bags were gone! Terror seized me. I roared after the rascal, but might as well have been silent, for thieves seldom come at a call. Running, raving, and lamenting, about the fields and roads, employed some time. I was too much immersed in distress to find relief in tears. They refused to flow. I described the bags, and told the affair to all I met. I found pity, or seeming pity, from

all, but redress from none. I saw my hearers dwindle with the twilight; and, by eleven o'clock, I found myself in the open street, left to tell my mournful tale to the silent night.

"It is not easy to place a human being in a more distressed situation. My finances were nothing; a stranger to the world, and the world to me; no employ, nor likely to procure any; no food to eat, or place of rest; all the little property I had upon earth taken from me; nay, even hope, that last and constant friend of the unfortunate, forsook me. I was in a more wretched condition than he who has nothing to lose. An eye may roll over these lines when the heart that writes them shall be still. May that eye move without a tear! I sought repose in the street upon a butcher's block."

Next day he resumed his wanderings, and, appeasing his hunger chiefly from the turnip-fields by the wayside, at length reached Birmingham. But we need not pursue the story further. The catastrophe was what might have been expected. He resolved at last, in his utter desolation, to throw himself upon the protection of his father; and the affair ended, within less than a week after his flight, in his return to his uncle's house, and the ratification of a treaty of mutual forgiveness and forgetfulness by all parties.

He seems now to have first begun to show that ingenuity and taste for intellectual occupation which we find afterwards so strongly marking his character. His earliest predilection was in favour of music. To this amusement he for some time devoted all his leisure hours. Having bought what he calls a bell-harp for half-a-crown, he laboured, he tells us, in endeavouring to tune it for six months. He then borrowed a dulcimer, and, even before learning to play on it, set about making another after it for himself. "But in the fabrication of this instrument," says he, "I had neither timber to

work upon, tools to work with, nor money to purchase either. It is said, necessity is the mother of invention. I pulled a large trunk to pieces, one of the relics of my family, but formerly the property of Thomas Parker, the first Earl of Macclesfield: and as to tools, I considered that the hammer-key and the plyers belonging to the stocking-frame would supply the place of hammer and pincers. My pocket-knife was all the edge-tools I could raise; and a fork with one limb was made to act in the double capacity of sprig-awl and gimlet." In this way he at last completed the dulcimer, which, after learning to play upon it, he sold to one of his wealther companions for sixteen shillings, bought a coat with the money, and constructed a better instrument.

The term of his apprenticeship was over at Christmas, 1744; but he still continued to work with his uncle as a journeyman. It was in 1746, he tells us, that he first began to be fond of books, his earliest purchase being three volumes of the Gentleman's Magazine. His passion for books gave rise to a new application of his manual ingenuity. Those he bought being mostly in a very tattered condition, he felt anxious to be able to restore them to a somewhat more seemly appearance; and accordingly by observing a binder, with whom he had got acquainted, at his work, soon contrived to make himself a tolerable proficient in that craft. When he had bought from this man several of his cast-off tools, among others he offered me," says Hutton, "a worn-down press for two shillings, which no man could use, and which was laid by for the fire. I considered the nature of its construction, brought it, and paid the two shillings. I then asked him to favour me with a hammer and a pin, which he brought with half a conquering smile and half a sneer. I drove out the garter-pin, which, being galled, prevented the press from working, and turned another square, which per-

fectly cured the press. He said in anger, 'If I had known, you should not have had it.' This proved for forty-two years my best binding-press." Soon after this, too, he began to write verses, which was a favourite amusement with him to the end of his life.

At last, seeing no prospect of anything but drudgery and poverty in the trade to which he had been brought up, he left his uncle, and took up his residence with a sister who lived in the same town—an admirable woman, whose affection and unwearied cares for his comfort and welfare did much to compensate the loss and desertion of his other relatives. His great ambition now was to be settled in business as a bookseller, and he at last determined to set up in that character in the town of Southwell, about fourteen miles from Nottingham. Here he accordingly opened a shop, with, as he expresses it, about twenty shillings' worth of trash for all his stock. "I was," says he, "my own joiner, put up my shelves and furniture, and in one day became the most eminent bookseller, in the place." Being employed, however, during the other days of the week in working at Nottingham as a bookbinder, he could only give his attendance at Southwell on the Saturdays, that being besides quite enough for the literary wants of the place. Throughout a very rainy summer, "I set out," says he, "at five every Saturday morning, carried a burden of from three pounds weight to thirty, opened a shop at ten, starved in it all day upon bread, cheese, and half-a-pint of ale, took from one to six shillings, shut up at four, and, by trudging through the solitary night and the deep roads five hours more, I arrived at Nottingham by nine; where I always found a mess of milk porridge by the fire, prepared by my valuable sister."

This humble attempt, however, was the beginning of his prosperity. Next year he was offered about two hundred pounds weight of old books, on his note of hand, for twenty-seven shillings, by a dissenting minis-

ter to whom he was known; and upon this he immediately determined to break up his establishment at Southwell, and to transfer himself to Birmingham. He did so, and succeeded so well, that, by never suffering his expenses to exceed five shillings a-week, he found that by the end of the first year he had saved about twenty pounds.

This, of course, enabled him to extend his business, which he soon made a very valuable one. Birmingham was to Hutton what Philadelphia was to Franklin. The first time he had ever seen it was when he entered it after running away from his uncle's, a wearied and homeless wanderer, with scarcely a penny in his pocket, and not a hope in the world to trust to. Yet in this place he was destined to acquire, some years after, an ample fortune, and to take his place among the most honoured of its citizens.

His future success in life was merely the result of integrity, and regular and persevering industry. After having been four or five years in business, during which time he had saved a good deal of money, he married the lady to whom he continued united for more than forty years, and in whom he always considered that he had found the chief blessing of his life. Some of the speculations in which he involved himself, now that he had become a monied man, were not very considerate, and he was once or twice, in this way, reduced to rather alarming difficulties; but he had a resource, in his renewed industry and attention to business, which never failed to retrieve him. Even in following those fancies which led him away from his proper business, he often gave the most striking evidence of his characteristic activity and perseverance. While superintending the building of a house for himself, "up," says he, "at four every morning, I set the people to work, watched over them and laboured with them all day, and frequently charged myself with the meanest and most laborious parts of the

employment." This was after he had been twenty-five years in business. Again, having engaged about the same time in farming, by which he lost a good deal of money, he tells us that he paid his visits to his farm three or four times a-week, though it was distant four or five miles, always on foot, and, having arrived there by five in the morning, was back to Birmingham by breakfast. He had long before this time, too, shown an ambition for public employment; and, having been appointed a commissioner of the Court of Requests, had distinguished himself greatly by his zealous and able exertions in the discharge of the duties of that office.

It was in the midst of all these diversified occupations that Mr. Hutton conceived the idea of commencing author, and actually found time for a succession of literary performances, such as would have been accounted creditable to the application of a person leading a life of uninterrupted leisure. It shows what may be accomplished in any circumstances, if a man's heart be in his work. In such a case, the most incessant calls of business, or the most arduous professional duties, are scarcely any interruption to the prosecution of the fondly-cherished enterprise. The moments that other avocations leave for it, the fewer they are, are only the more precious; and, being so highly valued, are, in a corresponding degree, economically and profitably used. For it, too, are carefully gathered and saved all those little fragments of time, and brief opportunities of repose and meditation, of which the busiest life has many, and which, without some such object ready to take them up, are so apt to be trifled away and lost. As one of our old poets expresses it,

> "A good wit, that on the immortal shrine
> Of memory engraves a work divine,
> Abroad, abed, at board, for ever uses
> To mind his theme, and on his book still muses."*

* These lines will be found near the beginning of Sylvester's translation of Du Bartas's *Divine Weeks and Works.*

Mr. Hutton had been in the habit of sending verses occasionally to the magazines, almost from the commencement of his residence in Birmingham; but it was in the year 1780 that he undertook, for the first time, to write a book. This was his well-known History of Birmingham. Upon the composition of this work, he tell us, he spent nine months. "Fearing my ability," says he, "I wrote with dread." The mere money he received on this occasion was but a scanty remuneration for his labour, all his publisher allowed him being forty pounds, together with seventy-five copies of the work. But he was abundantly rewarded in another way: the enjoyment he took in his task itself was exquisite. "Pleased," says he, "as a fond parent with this history, as my first literary offspring, I may be said while in manuscript to have had the whole by heart. Had a line been quoted, I could have followed it up through the chapter. Frequently, while awake in the night, I have repeated it in silence for two or three hours together, without adding or missing a word." In referring to another of his works, he tells us, in like manner, that "the pen itself has rewarded its own labour, for the pleasure of writing is inconceivable."

The History of Birmingham was published in 1782, and Hutton was immediately elected a Fellow of the Antiquarian Society of Edinburgh. A second edition of the work was called for the following year, and it has ever since maintained a high reputation among the class of productions to which it belongs. Its author, although nearly sixty years of age when this his first publication appeared, lived to add to it a long list of other works. Having now fairly made his appearance before the world as a literary man, he took advantage, with his characteristic activity and eagerness, of every opportunity of supporting his new character. For instance, having been called to the metropolis in 1785 to give his evidence on a trial, he converted the incident into the

matter of a book, which he published soon after his return home, under the title of "A Journey to London." In the same manner, a few years after, having gone with his family on a trip to Blackpool, a watering-place in Lancashire, he wrote and published its history. Of his other works, the principal are his Histories of the Court of Requests, and of the Hundred Court of Birmingham, his History of the Battle of Bosworth Field, his History of Derby, and his Description of the Roman Wall. In order the better to prepare himself for the composition of this last work, by a personal inspection of the celebrated remnant of antiquity to which it relates, he performed a journey of above six hundred miles, entirely on foot, at the age of seventy-eight. Of this journey, which occupied thirty-five days, his daughter, who accompanied him on horseback, has published a very interesting account.

Another of the works of his old age was a volume of poems. Indeed, verse-making seems to have been the favourite amusement of his leisure, especially after he retired from business on reaching his seventieth year. In 1793, we find him recording twenty-six poetical effusions among the results of his literary industry; and, for a long while, every succeeding year added its contribution of the same species of intellectual produce. He used to tag his rhymes while taking his daily walks between his country-house and his shop in town, which, although now given up to the charge of his son, he continued to visit with nearly as much regularity as ever. Under date of 1795 he writes, "Walking and assisting my son employed the body; studying and writing, the mind." Soon after this, his wife's health, which had long been in a declining state, became alarmingly infirm; and much of his time was occupied in bestowing the most affectionate attentions upon the beloved companion of his life. "My practice," says the kind-hearted old man, "had been to rise about five, relieve

the nurse of the night by holding the head of my dear love in my hand, with the elbow resting on the knee. At eight, I walked to business at Birmingham, where I stayed till four, when I returned. I nursed her till eight, amused myself with literary pursuits till ten, and then went to rest." Mrs. Hutton had suffered severely from the alarm into which she was thrown by the brutal conduct of the rioters, who, in the year 1791, were allowed, almost without any attempt being made by the constituted authorities to resist them, to commit, for several days, every species of outrage and devastation in the town of Birmingham, and by whom her husband's house was burned to the ground, and his property destroyed to the amount of many thousands of pounds. Of these dreadful proceedings, so deeply disgraceful both to the mad perpetrators and to the complacent lookers-on, Mr. Hutton has left us a narrative, eloquent with indignation, and most interesting from its graphic details. His wife never recovered from the shock she received on this occasion, driven as she and her family were from their home, and literally obliged to fly for their lives, and to implore a shelter from strangers, while yet doubtful if a shilling remained to them in the world to pay for the accommodation they craved.

This singular man died in 1815, at the great age of ninety-two. The history of his life, written by himself in the short space of little more than two months, while in his seventy-fifth year, has been given to the world since his death by his daughter, and is altogether one of the most interesting pieces of autobiography extant. The literary performances of Hutton, like those of Franklin (whose history we shall sketch in another chapter), claim our admiration both as having been produced amidst the interruptions of a very busy life, and as being almost entirely the result of self-education and a self-acquired taste for intellectual enjoyments.

He affords us, also, another instructive example, in addition to several we have already quoted, in proof of how possible it is for a man, even after being somewhat advanced in life, to overcome, to a certain extent at least, the disadvantages of the most neglected youth. Hutton had, according to his own account, reached his twenty-third year before he began to take a liking to books. Yet we have seen both how strongly attached he afterwards became to reading, and what a respectable figure he succeeded in making as an author; although he may almost be said not to have taken up his pen till the period of life at which most other writers have laid theirs down. We thus see that even the circumstances usually accounted most adverse to the attainment of eminence are all surmountable by zeal and perseverance; that excellence is, in any circumstances, almost the infallible result of the determination to excel; and that it depends chiefly upon a man himself, and not upon his outward fortunes, whether he make the golden delights of knowledge and philosophy his own, or spend his life in mental torpor, and go to his grave without having known what it is to enjoy the highest and most distinguishing capacities of his nature.

The name of William Hutton naturally calls to our recollection that of Robert Dodsley. Dodsley was born in 1703, at Mansfield, in the county of Nottingham, only about twenty miles distant from Derby, the native place of Hutton. His parents were very poor, and his education, consequently, of the scantiest description. He was in the first instance bound apprentice to a stocking-weaver; but after some time he abandoned this employment, and, having gone into service, became eventually footman to the Honourable Mrs. Lowther. In this situation, having addressed a copy of verses to Pope, he obtained the notice of that celebrated writer; and, under his encouragement, was induced to publish by subscription a volume of poems, to which he gave

the title of "The Muse in Livery." It attracted a good deal of the public attention, and was followed soon after by a satirical comedy, called "The Toyshop," which Pope was kind enough to read in manuscript, and to employ his influence in getting represented. Its success was so great that the profits enabled the author to emerge from his humble situation, and to set up as a bookseller in Pall Mall. His difficulties were now over, and the way to independence was before him. By his prudence and steadiness he made his business, in course of time, an extremely valuable one, and became, at last, one of the most eminent London publishers of his day. But he neither forgot in his prosperity the humble station from which he had risen, nor neglected the cultivation of those powers to which he owed his elevation. One day, when his friend Pope happened, in conversing with him, to mention a certain individual celebrated for the good table he kept, "I knew him well," said Dodsley, "I was his servant." With all his attention to business, he found time for literature and authorship; and continued till nearly the close of his life to give to the world a succession of works, almost all of which enjoyed considerable popularity, and some of which may be said to have secured for him a durable name among the writers of his country. His collection of maxims, in particular, entitled "The Economy of Human Life," which was so highly esteemed on its first appearance as to be suspected to have proceeded from the pen of Lord Chesterfield, was long a popular work, not only in England but in other countries; so much so, that there are enumerated about a dozen different translations of it into the French language alone. Dodsley died in 1764.

The names of many other literary booksellers might be added, some of them nearly as much self-educated men as Hutton and Dodsley. Mr. JOHN ALMON, who died at an advanced age in 1805, and was well known

as a political and miscellaneous writer during the latter half of the last century, made a considerable fortune as a bookseller in London, the greater part of which, however, he lost by an unlucky speculation in which he was induced to engage after he had retired from business. He was originally a bookseller's apprentice at Liverpool, and had also spent part of his early life at sea. Another instance is that of ALEXANDER CRUDEN, the author of the well-known and valuable Concordance of the Old and New Testament, who was a bookseller in London, and distinguished for considerable learning as well as much eccentricity. He opened his shop under the Royal Exchange in 1732, and it was here that he composed his Concordance. The work appeared in 1737, and was dedicated to Queen Caroline, who died, however, only a few days after receiving the presentation copy. Poor Cruden had formed very extravagant expectations from the patronage of his royal mistress, and this disappointment was too much for him. He had shown symptoms of insanity on a former occasion, and he was now reduced to such a state that his friends found it necessary to send him to a lunatic asylum. This interruption did not, however, terminate his literary career. Having made his escape from his place of confinement, he published a vehement remonstrance on the manner in which he had been treated; and at the same time brought an action against Dr. Monro and the other persons who had been concerned in the affair, in which, however, he was nonsuited. This new injustice, as he conceived it to be, gave occasion to several more pamphlets. After this, he found employment for some years as a corrector of the press—the character in which he had first appeared in London, and for which he was well fitted by his education and acquirements. Very accurate editions of several of the Greek and Latin classics appeared at this time, printed under his superintendence. But, in the course of a few

years, his malady returned, and he was again placed in confinement. On his liberation he once more tried his old expedient of prosecuting the persons who had presumed to offer him such an indignity, laying his damages, on this occasion, at ten thousand pounds. But he was again unsuccessful. On this he determined, as before, to publish his case to the world; and accordingly forth came the statement, in four successive parts, under the title of the "Adventures of Alexander the Corrector"—a name which he now assumed, not, as the reader might suppose, in reference to his occupation of inspector of proof-sheets, but as expressive of his higher character as censor-general of the public morals. His favourite instrument and chief auxiliary in executing the duties of his office was a large sponge, which he carried constantly about with him in his walks through town, for the purpose of obliterating all offensive inscriptions which he observed on the walls, especially the famous "No. 45," the mark of the partisans of Wilkes, to whose excesses he strenuously opposed himself, both in this way and by various admonitory pamphlets. On the publication of the second part of his adventures he went to present it at court, in the expectation of being knighted; and soon after offered himself as a candidate to represent the city of London in parliament. Giving out, too, that he had a commission from heaven to preach a general reformation of manners, he made the attempt first amongst the gownsmen at Oxford, and then among the prisoners in Newgate; but in both cases with very little effect. In the midst of these and many other extravagances, he both brought out a second and greatly enlarged edition of his Concordance, and pursued his labours as a corrector of the press, and a fabricator of indexes, with as much steadiness as if his intellect had been perfectly sound. He even managed his worldly affairs with great prudence; and at his death, which took place suddenly in 1770, he left be-

hind him considerable property in bequests to his relations.

Among booksellers who have been likewise men of letters, we ought not to omit the names of the two PANCKOUCKES, father and son, who were both natives of Lille, where the elder carried on business during the early part of last century. He was a person of very considerable learning and talent, and the author of a number of works on subjects of philosophy, history, and belles lettres. His son, Charles Joseph, settled at Paris in the same line with his father when he was twenty-eight years of age, and eventually became one of the most eminent publishers in that capital. Besides having projected and given to the world the first collected edition of the works of Voltaire, and having borne the chief part in most of the other great literary enterprises undertaken at Paris in his time, he has made his name particularly memorable by the establishment of the "Moniteur," the idea of which is said to have suggested itself to him from what he saw during a visit to England of the influence of the newspaper press there even at that time. With him also originated the "Encyclopédie Méthodique," which eventually extended to above 150 volumes. Panckoucke lived in habits of intimacy with all the most distinguished French writers and men of genius of his time. We find, in the published works both of Voltaire and Rousseau, many letters addressed to him by those celebrated men. He was also the author of a considerable number of works, among which may be mentioned translations of Tasso, Ariosto, and Lucretius; philosophical discourses on beauty, pleasure, and pain; treatises on certain subjects connected with finance; and an esteemed dissertation, intended to serve as an introduction to the Natural History of Buffon, of which he was the publisher. FREDERICK ROTHSCHOLTZ of Nuremberg, who flourished in the beginning of last century, was another bookseller who acquired a distin-

guished name in the world of literature. The list of his productions is very extended, and many of them display considerable learning. Among them is one, in two volumes quarto, entitled, "A Short Essay towards an Ancient and Modern History of Booksellers."

The history of the art of printing has, in our own country at least, been chiefly illustrated by the labours of writers to whom authorship was only a relaxation from the toils of business and an active life. There is now in the British Museum an extensive and valuable series of tracts on the subject of typography, which originally formed part of the Harleian Library, and which were purchased by Lord Oxford from a London bookseller, named JOHN BAGFORD, who had spent a great part of his life in collecting them, and had intended to use them as materials for a History of Printing, for which, in 1709, he published proposals in the Philosophical Transactions. Bagford was in early life a shoemaker, but contrived afterwards to establish himself in business both as a vender and printer of books. SAMUEL PALMER, the author of a General History of Printing, published in 1733, was also himself a printer. JOSEPH AMES, the author of the well-known Typographical Antiquities, as well as of various other antiquarian works, had been originally a plane-maker, and carried on business, till his death, as a ship-chandler, in Wapping. Mr. WILLIAM HERBERT, who published an augmented edition of Ames's work, in three volumes quarto, was a map and print seller in London, having formerly carried on business as a hosier. To these names we may add that of Mr. SAMUEL PATERSON, who, having been first a bookseller, became afterwards an auctioneer, and, besides several works in light literature, is known as the author of a learned and valuable catalogue of the best books in all the different departments of study, which appeared in 1786, entitled *Bibliotheca Universalis Selecta.* But we even owe the art of printing itself, in

its different forms, chiefly to persons with whom literature was not a profession, but whose attention was merely attracted to it from the midst of other, and, as is sometimes supposed, uncongenial pursuits. Of the two individuals to whom the invention of the art is generally ascribed, the one, JOHN GUTTENBERG, was a merchant of Strasburg, and the other, JOHN FAUST, was a goldsmith of Mentz. Stereotype-printing was the invention of WILLIAM GED, a goldsmith of Edinburgh; and we are indebted for the more recent process, now so well known by the name of Lithography, to M. SENEFELDER, who had spent the earlier part of his life as a strolling actor.

Most of our readers are probably familiar with IZAAK WALTON'S delightful little work, "The Complete Angler;" for its simple and natural style, and the unaffected benevolence and love of its author for his subject, together with its fresh and touching pictures of rural landscapes and rural enjoyments, give it many charms even for those who do not care at all for the sport of which it more particularly professes to treat. Walton was during the greater part of his life a linen-draper in London, and kept a shop in Fleet Street. He appears to have received only a very ordinary education; but his love of reading enabled him, even while actually engaged in carrying on his business, to store his mind with a great variety of information, and so to fit himself for becoming an able and highly-interesting writer. The occasion of his first attempting authorship was this:—On the death of his friend, the celebrated Doctor Donne, it was proposed that the life of that distinguished poet and divine should be written by Sir Henry Wotton; and he employed Walton, as an acquaintance and ardent admirer of the deceased, to collect the necessary materials for that purpose. Sir Henry, however, died before finishing the work, and there was no one to undertake the completion of it but Walton; who, having, in these

circumstances, been induced to apply himself to the task, produced a very interesting piece of biography, which was placed at the head of the first edition of Donne's Sermons, and has since been frequently re-



IZAAK WALTON.

printed. At this time he was still in business; but a few years after, having attained a competent fortune, he retired, and spent the evening of his life chiefly among his friends in the country, and in those literary occupa-

tions for which the success of his first attempt had shown his aptitude. His next production was a Life of Sir Henry Wotton; and it was followed by those of Hooker, George Herbert, and Bishop Sanderson, all of which were well received by the public, and still rank among the most esteemed pieces of biography in the language. His Complete Angler appeared for the first time in 1653, and went through many editions even during the lifetime of the author, who died in 1683, at the age of ninety. In his latter days he published also a poetical work of much merit, entitled "Thealma and Clearchus," purporting to be written by John Chalkhill, but which has been recently suspected, on very probable grounds, to have been the production of his own pen.

There is another celebrated name which we may mention here, although it would be out of place for us to attempt even the most rapid sketch of the varied and eventful history of the person to whom it belongs:—that of DANIEL DEFOE, the immortal author of Robinson Crusoe. Defoe, born in 1661, was only twenty-one years of age when he commenced that career of authorship in which he subsequently showed such extraordinary fertility; and was then, and for some time afterwards, engaged in trade, having been at first a horse-factor, and next a maker of bricks at Tilbury Fort. He soon, however, relinquished everything else for literature and politics; for which, indeed, his temper and talents adapted him much more than for business. In the new profession which he had chosen his industry was almost altogether unparalleled, as the mere list of his productions may suffice to show; nor does either misfortune, disease, or old age appear to have abated his exertions. He lived till 1731. For a long time it was the fashion to regard Defoe as merely the unprincipled hireling and vulgar libel-monger of a party;—a reputation for which he was probably not a little indebted to a

famous line of Pope's, whose connections happened to unite him most closely with the faction in the state to which Defoe was chiefly opposed. It is gratifying to think that public opinion is at last beginning to do justice to one whose writings testify him to have been uniformly the honest and intrepid advocate of what he deemed to be right, without regard to the views or interests of any party, and whom his whole history demonstrates to have never shrunk from any danger or any sacrifice in the defence or avowal of his principles. As a man of genius, nobody entitled to express an opinion upon such matters can fail to think highly of the author of Robinson Crusoe, which, however, is by no means the only one of his productions that evinces extraordinary powers, both of invention and of writing.

We may here also notice the name of another man of genius, GEORGE LILLO, the author of "Fatal Curiosity," "George Barnwell," and other well-known dramatic pieces. Lillo was born in London in 1693, and spent his life in business as a jeweller in the city. Few particulars of his history, however, have come down to us; nor do we know anything of the education he received, although there is reason to believe that he owed his literary acquirements chiefly to his own application and love of reading. He is recorded to have been attentive to business, and to have acquired, as a tradesman, a high character for probity, and a competent, if not an abundant fortune. Yet, although he died at the early age of forty-six, he had already produced eight or nine dramas, several of them of great power. A few months after his death his character was sketched in the following terms by his friend Fielding: "He had a perfect knowledge of human nature, though his contempt of all base means of application, which are the necessary steps to great acquaintance, restrained his conversation within very narrow bounds. He had the spirit of an old Roman, joined to the innocence of a primitive Christian; he was

content with his little state of life, in which his excellent temper of mind gave him an happiness beyond the power of riches, and it was necessary for his friends to have a sharp insight into his want of their services as well as good inclination or abilities to serve him. In short, he was one of the best of men, and those who knew him best will most regret his loss."

Men circumstanced like Walton, Defoe, and Lillo are well fitted, it may be remarked, to give new vigour to the literature of a country, by infusing into it something of what we may call the spirit of the living world, when it is waxing feeble under the regimen of recluse students and dealers in mere erudition. Their works are almost sure to bear the stamp of originality in conception and manner, which is in literature the very principle of life and strength. The point from which they look at their subject is different from that which the mere scholar would naturally select; their subject itself is probably not one which he would have chosen; and, at all events, the conceptions it suggests will in their minds amalgamate with different associations, and take altogether a different shape and character. Erudition, which should be but the furniture, is too often made the food, of the mind; which, under such unfit sustenance, cannot but languish and dry away, even as the body would do if it were fed only with chalk or sawdust. A man who mixes much with the world is little liable to have his powers of thinking thus destroyed by being crushed and suffocated under the worn and cast-off thoughts of his predecessors; his mind cannot fail to be kept awake by the stir of the living humanity about him, which will act upon it like a healthy breeze blowing away all dust and rubbish, and keeping its faculties in their proper tone. But if, in addition to this salutary intercourse with the living world, a man of true genius shall have been further exposed to the necessity of acquiring his knowledge of literature principally by his own efforts,

and of working out his own way to that mastery over his thoughts and expressions which constitutes the power of writing, it is probable that, whatever may be his deficiencies in other respects (which, if they were ever so many, the possession of true genius will go far to cover), his productions will have the advantage, in respect of originality, over those of an equally gifted but more regularly educated mind. In the very style of the writers we have mentioned, especially of the two first, there is a charm of nature, which we generally look for in vain in the compositions of more learned wits. In Defoe's political works, too, there is often all the vigour and dexterity of a most consummate rhetoric, rendered only more effective by many a racy idiom which would probably have been rejected by a mere rhetorician of the schools. Lillo's tragedies, again, full of power and pathos, are unlike anything else in the dramatic literature, either of our own or any other country. It seems as if we could tell almost by the perusal of them that their author must have been in business—that he was a regularly-bred tradesman, as well as a self-taught poet. The humblest and the highest walks of life are both favourite regions of poetry; Lillo is the only poet of middle life. His personages are merely the ordinary men and women we meet with every day,—neither heroes and emperors, nor beggars and banditti; and his scenes are mostly in streets or on country roads by daylight, and at evening in domestic parlours. Yet even to this atmosphere of common life he has communicated not a little of the excitement of poetry. This is true originality; one of the miracles of that power of genius, to which nothing is impossible.

CHAPTER XII.

SELF-EDUCATED MEN CONTINUED:—FERGUSON.—INFLUENCE OF ACCIDENT IN DIRECTING PURSUITS:—RENNIE; LINNÆUS; VERNET; CARAVAGGIO; TASSIE; CHATTERTON; HARRISON; EDWARDS; VILLARS; JOLY; JOURDAN; BANDINELLI; PALISSY.

AMONG the histories of self-educated men there are few more remarkable than that of JAMES FERGUSON. If ever any one was literally his own instructor in the very elements of knowledge, it was he. Acquisitions that have scarcely in any other case, and probably never by one so young, been made without the assistance either of books or a living teacher, were the discoveries of his solitary and almost illiterate boyhood. There are few more interesting narratives in any language than the account which Ferguson himself has given us of his early history. He was born in the year 1710, a few miles from the village of Keith in Banffshire; his parents, as he tells us, being in the humblest condition of life (for his father was merely a day-labourer), but religious and honest. It was his father's practice to teach his children himself to read and write, as they successively reached what he deemed the proper age; but James was too impatient to wait till his regular turn came. While his father was teaching one of his elder brothers, "the eager child" was secretly occupied in listening to what was going on; and, as soon as he was left alone, used to get hold of the book, and work hard in endeavouring to master the lesson which he had thus heard gone over. Being ashamed, as he says, to let his father know what he was about, he was wont to apply to an old woman who lived in a neighbouring cottage to solve his difficulties. In this way he actually

learned to read tolerably well before his father had any suspicion that he knew his letters. His father at last, very much to his surprise, detected him one day reading by himself, and thus found out his secret.

When he was about seven or eight years of age, a simple incident occurred which seems to have given his mind its first bias to what became afterwards its favourite line of pursuit. The roof of the cottage having partly fallen in, his father, in order to raise it again, applied to it a beam, resting on a prop in the manner of a lever, and was thus enabled, with comparative ease, to produce what seemed to his son quite a stupendous effect. The circumstance set our young philosopher thinking; and, after a while, it struck him that his father, in using the beam, had applied his strength to its extremity, and this, he immediately concluded, was probably an important circumstance in the matter. He proceeded to verify his notion by experiment; and having made several levers, which he called bars, soon not only found that he was right in his conjecture as to the importance of applying the moving force at the point most distant from the fulcrum, but discovered the rule or law of the machine, namely, that the effect of any force or weight made to bear upon it is always exactly proportioned to the distance of the point on which it rests from the fulcrum. "I then," says he, "thought that it was a great pity that, by means of this bar, a weight could be raised but a very little way. On this, I soon imagined that, by pulling round a wheel, the weight might be raised to any height, by tying a rope to the weight, and winding the rope round the axle of the wheel; and that the power gained must be just as great as the wheel was broader than the axle was thick; and found it to be exactly so, by hanging one weight to a rope put round the wheel, and another to the rope that coiled round the axle." The boy had thus, it will be observed, actually dis-

covered two of the most important of the elementary truths in mechanics—the principles of the lever and of the wheel and axle; he afterwards hit upon others; and, all the while, he had not only possessed neither book nor teacher to assist him, but was without any other tools than a simple turning-lathe of his father's, and a little knife wherewith to fashion his blocks and wheels, and the other contrivances he needed for his experiments. After having made his discoveries, however, he next, he tells us, proceeded to write an account of them; thinking his little work, which contained sketches of the different machines drawn with a pen, to be the first treatise ever composed of the sort. When, some time after, a gentleman showed him the whole in a printed book, although he found that he had been anticipated in his inventions, he was much pleased, as he was well entitled to be, on thus perceiving that his unaided genius had already carried him so far into what was acknowledged to be the region of true philosophy.

It is a ludicrous blunder that the French astronomer Lalande makes in speaking of Ferguson, when he designates him as "*Berger au Roi d'Angleterre en Ecosse*,"—the King of England's Shepherd for Scotland. He had no claim to this pompous title: but it is true that he spent some of his early years as a keeper of sheep, though in the employment, not of the state, but of a small farmer in the neighbourhood of his native place. He was sent to this occupation, he tells us, as being of weak body; and, while his flock was feeding around him, he used to busy himself in making models of mills, spinning-wheels, &c., during the day, and in studying the stars at night, like his predecessors of Chaldea. When a little older he went into the service of another farmer, a respectable man called James Glasham, whose name well deserves to be remembered. After the labours of the day, young Ferguson used to go at night

to the fields, with a blanket about him and a lighted candle, and there, laying himself down on his back, pursued for long hours his observations on the heavenly bodies. "I used to stretch," he says, "a thread with small beads on it, at arm's length, between my eye and the stars; sliding the beads upon it, till they hid such and such stars from my eye, in order to take their apparent distances from one another; and then laying the thread down on a paper, I marked the stars thereon by the beads." "My master," he adds, "at first laughed at me; but, when I explained my meaning to him, he encouraged me to go on; and, that I might make fair copies in the daytime of what I had done in the night, he often worked for me himself. I shall always have respect for the memory of that man." Having been employed by his master to carry a message to Mr. Gilchrist, the minister of Keith, he took with him the drawings he had been making, and showed them to that gentleman. Mr. Gilchrist upon this put a map into his hands, and having supplied him with compasses, ruler, pens, ink, and paper, desired him to take it home with him, and bring back a copy of it. "For this pleasant employment," says he, "my master gave me more time than I could reasonably expect; and often took the threshing flail out of my hands, and worked himself, while I sat by him in the barn, busy with my compasses, ruler, and pen." This is a beautiful, we may well say, and even a touching picture—the good man so generously appreciating the worth of knowledge and genius, that, although the master, he voluntarily exchanges situations with his servant, and insists upon doing the work that must be done himself, in order that the latter may give his more precious talents to their more appropriate vocation. We know not that there is on record an act of homage to science and learning more honourable to the author.

Having finished his map, Ferguson carried it to Mr.

Gilchrist's, and there he met Mr. Grant of Achoynaney, who offered to take him into the house, and make his butler give him lessons. "I told Squire Grant," he says, "that I should rejoice to be at his house, as soon as the time was expired for which I was engaged with my present master. He very politely offered to put one in my place, but this I declined." When the period in question arrived, accordingly, he went to Mr. Grant's, being now in his twentieth year. Here he found both a good friend and a very extraordinary man, in Cantley the butler, who had first fixed his attention by a sun-dial which he happened to be engaged in painting on the village school-house, as Ferguson was passing along the road on his second visit to Mr. Gilchrist. Dialling, however, was only one of the many accomplishments of this learned butler, who, Ferguson assures us, was profoundly conversant with both arithmetic and mathematics, played on every known musical instrument except the harp, understood Latin, French, and Greek, and could let blood and prescribe for diseases. These multifarious attainments he owed, we are told, entirely to himself and to nature. Ferguson designates him "God Almighty's scholar."

From this person Ferguson received instructions in Decimal Fractions and Algebra, having already made himself master of Vulgar Arithmetic by the assistance of books. Just as he was about, however, to begin Geometry, Cantley left his place for another in the establishment of the Earl of Fife, and his pupil thereupon determined to return home to his father.

Cantley, on parting with him, had made him a present of a copy of Gordon's Geographical Grammar. The book contains a description of an artificial globe, which is not, however, illustrated by any figure. Nevertheless, "from this description," says Ferguson, "I made a globe in three weeks at my father's, having turned the ball thereof out of a piece of wood; which ball I covered

with paper, and delineated a map of the world upon it; made the meridian ring and horizon of wood, covered them with paper, and graduated them; and was happy to find that by my globe (which was the first I ever saw) I could solve the problems."

For some time after this he was very unfortunate. Finding that it would not do to remain idle at home, he engaged in the service of a miller in the neighbourhood, who, feeling probably that he could trust to the honesty and capacity of his servant, soon began to spend all his own time in the alehouse, and to leave poor Ferguson at home, not only with everything to do, but with very frequently nothing to eat. A little oatmeal, mixed with cold water, was often, he tells us, all he was allowed. In this situation he remained a year, and then returned to his father's, very much the weaker for his fasting. His next master was a Dr. Young, who, having induced him to enter his service by a promise to instruct him in medicine, not only broke his engagement as to that point, but used him in other respects so tyrannically, that, although engaged for half a year, he found he could not remain beyond the first quarter, at the expiration of which, accordingly, he came away without receiving any wages, having "wrought the last fortnight," he says, "as much as possible with one hand and arm, when I could not lift the other from my side." This was in consequence of a severe hurt he had received, which the Doctor was too busy to look to, and by which he was confined to his bed for two months after his return home.

Reduced as he was, however, by exhaustion and actual pain, he could not be idle. "In order," he says, "to amuse myself in this low state, I made a wooden clock, the frame of which was also of wood, and it kept time pretty well. The bell on which the hammer struck the hours was the neck of a broken bottle." A short time after this, when he had recovered his health, he gave a

still more extraordinary proof of his ingenuity, and the fertility of his resources for mechanical invention, by actually constructing a time-piece, or watch, moved by a spring. But we must allow him to give the history of this matter in his own words:—

"Having then," he says, "no idea how any time-piece could go but by weight and line, I wondered how a watch could go in all positions; and was sorry that I never thought of asking Mr. Cantley, who could very easily have informed me. But happening one day to see a gentleman ride by my father's house (which was close by a public road), I asked him what o'clock it then was. He looked at his watch and told me. As he did that with so much good nature, I begged of him to show me the inside of his watch; and though he was an entire stranger, he immediately opened the watch, and put it into my hands. I saw the spring box, with part of the chain round it; and asked him what it was that made the box turn round? He told me that it was turned round by a steel spring within it. Having then never seen any other spring than that of my father's gun-lock, I asked how a spring within a box could turn the box so often round as to wind all the chain upon it? He answered that the spring was long and thin; that one end of it was fastened to the axis of the box, and the other end to the inside of the box; that the axis was fixed, and the box was loose upon it. I told him that I did not yet thoroughly understand the matter. 'Well, my lad,' says he, 'take a long thin piece of whalebone; hold one end of it fast between your finger and thumb, and wind it round your finger; it will then endeavour to unwind itself; and if you fix the other end of it to the inside of a small hoop and leave it to itself, it will turn the hoop round and round, and wind up a thread tied to the outside of the hoop.' I thanked the gentleman, and told him that I understood the thing very well. I then tried to make a watch with wooden wheels,

and made the spring of whalebone; but found that I could not make the wheel go when the balance was put on, because the teeth of the wheels were rather too weak to bear the force of a spring sufficient to move the balance; although the wheels would run fast enough when the balance was taken off. I enclosed the whole in a wooden case, very little bigger than a breakfast teacup; but a clumsy neighbour one day, looking at my watch, happened to let it fall, and turning hastily about to pick it up set his foot upon it, and crushed it all to pieces; which so provoked my father, that he was almost ready to beat the man, and discouraged me so much, that I never attempted to make such another machine again, especially as I was thoroughly convinced I could never make one that would be of any real use."

What a vivid picture this gives us of an ingenuous mind thirsting for knowledge! And who is there, too, that does not envy the pleasure that must have been felt by the courteous and intelligent stranger by whom the young mechanician was carried over his first great difficulty, if he ever chanced to learn how greatly his unknown questioner had profited from their brief interview! He may possibly have read the above narrative, as given to the world by Ferguson, after the talents which this little incident probably contributed to develope had raised him from his obscurity to a distinguished place among the philosophers of his age; and if he did, he must have felt that encouragement in well-doing which a benevolent man may always gather, either from the positive effects of his kindness upon others, or from its influence upon himself. Civility, charity, generosity, may sometimes meet an ill return, but one person *must* be benefited by their exercise; the kind heart has its own abundant reward, whatever be the gratitude of others.

Ferguson's attention having thus been turned to the mechanism of time-pieces, he now began to do a little

business in the neighbourhood as a cleaner of clocks, by which he made some money. He was invited also to take up his residence in the house of Sir James Dunbar, of Durn, to whom he seems to have made himself useful by various little services which his ingenuity enabled him to render. Among other things he converted two round stones that graced the gateway into a pair of stationary globes, by painting a map of the earth upon one, and a map of the heavens upon the other. "The poles of the painted globes," he informs us, "stood towards the poles of the heavens; on each the twenty-four hours were placed around the equinoctial, so as to show the time of the day when the sun shone out, by the boundary where the *half* of the globe at any time enlightened by the sun was parted from the other half in the shade; the enlightened parts of the terrestrial globe answering to the like enlightened parts of the earth at all times. So that, whenever the sun shone on the globe, one might see to what places the sun was then rising, to what places it was setting, and all the places where it was then day or night throughout the earth." Having been introduced to Sir James's sister, Lady Dipple, he was induced at her suggestion to attempt the drawing of patterns for ladies' dresses, in which he soon became quite an adept. "On this," says he, "I was sent for by other ladies in the country, and began to think myself growing very rich by the money I got by such drawings; out of which I had the pleasure of occasionally supplying the wants of my poor father." He still continued, however, his astronomical studies, making observations on the stars, as usual, with his beaded threads, and delineating on paper the apparent paths of the planets as thus ascertained. So excited would he become while thus engaged, that he often conceived, he says, that he saw the ecliptic lying like a broad highway across the firmament, and the planets making their way in "paths like the narrow ruts made

by cart-wheels, sometimes on one side of a plane road, and sometimes on the other, crossing the road at small angles, but never going far from either side of it."

He now began to copy pictures and prints with pen and ink; and having gone to reside with Mr. Baird, of Auchmeddan, Lady Dipple's son-in-law, where he enjoyed access to a tolerably well-stocked library, he made his first attempt at taking likenesses from the life, in a portrait which he drew of that gentleman; "and I found," says he, "it was much easier to draw from the life than from any picture whatever, as nature was more striking than any imitation of it." His success in this new profession struck his country patrons as so remarkable, that they determined upon carrying him to Edinburgh, in order that he might be regularly instructed in those parts of the art of which he was still ignorant, Lady Dipple liberally agreeing to allow him to live in her house for two years. But when he came to that city he could find no painter who would consent to take him as an apprentice without a premium—a circumstance which his sanguine friends had not counted upon. In this extremity, not knowing what to do, he was advised by the Reverend Dr. Keith to trust to his own genius, and to commence the practice of his intended profession without waiting for any other instruction than what he had already received from nature. It was certainly a bold counsel; but Ferguson, having in truth no other resource, followed it, and succeeded beyond his most sanguine expectations; in a very short time making so much money as to enable him not only to defray his own expenses, but to gratify his kind heart by contributing largely to the support of his now aged parents. Portrait-painting was the business by which he mainly lived for twenty-six years.

Yet he does not appear to have ever given his heart to it, and, notwithstanding his success, he made various attempts to escape from it as a profession altogether.

When he had been only about two years in Edinburgh, he was seized with so violent a passion for the study, or at least the practice, of medicine, that he actually returned to his father's, carrying with him a quantity of pills, plasters, and other preparations, with the intention of setting up as the Æsculapius of the village. But it would not do. Of those who took his medicines very few paid him for them, and still fewer, he acknowledges, were benefited by them. So he applied again to his pencil; but, instead of returning immediately to Edinburgh, fixed his residence for a few months at Inverness. Here he employed his leisure in pursuing his old and favourite study of astronomy; and, having discovered by himself the cause of eclipses, drew up a scheme for showing the motions and places of the sun and moon in the ecliptic, on each day of the year, perpetually. This he transmitted to the celebrated Maclaurin, who found it to be very nearly correct, and was so much pleased with it, that he had it engraved. It sold very well, and Ferguson was induced once more to return to Edinburgh. He had now a zealous patron in Maclaurin, and one extremely disposed to assist him in his philosophical studies. One day Ferguson having asked the Professor to show him his orrery, the latter readily complied with his request, in so far as to exhibit to him the outward movements of the machine, but would not venture to open it in order to get at the wheel-work, which he had never himself inspected, being afraid that he should not be able to put it to rights again if he should chance to displace any part of it. Ferguson, however, had seen enough to set his quick and ingenious mind a working; and in a short time he succeeded in finishing an orrery of his own, and had the honour of reading a lecture on it to Maclaurin's pupils. He some time after made another of ivory (his first had been of wood); and in the course of his life he constructed, he tells us, six more, all unlike each other.

His mind was now becoming every day more attached to philosophical pursuits; and quite tired, as he says, of drawing pictures, in which he never strove to excel, he resolved to go to London, in the hope of finding employment as a teacher of mechanics and astronomy. Having written out a proof of a new astronomical truth which had occurred to him, namely, that the moon must move always in a path concave to the sun, he showed his proposition and its demonstration to Mr. Folkes, the President of the Royal Society, who thereupon took him the same evening to the meeting of that learned body. This had the effect of bringing him immediately into notice. He soon after published his first work, "A Dissertation on the Phenomena of the Harvest Moon," with the description of a new Orrery, having only four wheels. Of this work he says, with his characteristic modesty, "Having never had a grammatical education, nor time to study the rules of just composition, I acknowledge that I was afraid to put it to the press; and, for the same cause, I ought to have the same fears still." It was, however, well received by the public; and its ingenious author afterwards followed it up by various other productions, most of which became very popular. In 1748 he began to give public lectures on his favourite subjects, which were numerously and fashionably attended, his late Majesty, George III., who was then a boy, being occasionally among his auditors. He had till now continued to work at his old profession of a portrait painter; but about this time he at last bade it a final farewell, having secured another, and, in his estimation, a much more agreeable means of providing a subsistence for himself and his family. Soon after the accession of George III., a pension of fifty pounds per annum was bestowed upon him from the privy purse. In 1763 he was elected a Fellow of the Royal Society; the usual fees being remitted, as had been done in the cases of Newton and Thomas Simpson. But he eventually accumulated a

good deal of money. He died in 1776, having for many years enjoyed a distinguished reputation both at home and abroad; for several of his works had been translated into foreign languages, and were admired throughout Europe for the simplicity and ingenuity of their elucidations. Of his Dialogues on Astronomy, Madame de Genlis says, "This book is written with so much clearness, that a child of ten years old may understand it perfectly from one end to the other."

The faculties of distinct apprehension and luminous exposition belonged, indeed, to Ferguson in a pre-eminent degree. He doubtless owed his superiority here in a great measure to the peculiar manner in which he had been obliged to acquire his knowledge. Nothing that he had learned had been set him as a task. He had applied himself to whatever subject of study engaged his attention simply from the desire and with the view of understanding it. All that he knew, therefore, he knew thoroughly, and not by rote merely, as many things are learned by those who have no higher object than to master the task of the day. On the other hand, as has often happened in the case of self-educated men, the want of a regular director of his studies had left him ignorant of many departments of knowledge in which, had he been introduced to them, he was probably admirably adapted to distinguish himself, and from which he might have drawn, at all events, the most valuable assistance in the prosecution of his favourite investigations. Thus, familiar as he was with the phenomena of astronomy and the practical parts of mechanics, and admirable as was his ingenuity in mechanical invention, he knew nothing, or next to nothing, either of abstract mathematics or of the higher parts of algebra. He remained, in this way, to the end of his life, rather a clever empiric, to use the term in its original and more honourable signification, as meaning a practical and experimenting philosopher, than a man

of science. This was more peculiarly the sort of peril to which self-educated men were exposed in Ferguson's day, when books of any kind were comparatively scarce, and good elementary works scarcely existed on any subject. Much has since been done, and is now doing, to supply that great desideratum; and even already, in many departments, the man who can merely read is provided with the means of instructing himself both at little expense, and with a facility and completeness such as a century, or even half a century ago, were altogether out of the question. Not a little, however, still remains to be accomplished before the good work can be considered as finished; nor, indeed, is it the nature of it ever to be finished, seeing that, even if we should have perfectly arranged and systematized all our present knowledge, time must be constantly adding to our possessions here, and opening new worlds for philosophy to explore and conquer. We still want especially a general scheme or method of the sciences—a disposition of the several departments of human knowledge according to their mutual relation and dependence—so as to form a directory by which the student might, in all cases, pursue his way from one to another of them by the best route. This would be one of the most valuable aids, not to self-education only, but to all education.

It was, as has been stated, the accident of the roof of his father's cottage coming down, while he was a child, that first turned Ferguson's attention to mechanical contrivances. Such are the chances which often develope genius, and probably even give it in part its direction and peculiar character. The late eminent engineer, JOHN RENNIE, used to trace his first notions in regard to the powers of machinery to his having been obliged, when a boy, in consequence of the breaking down of a bridge, to go one winter every morning to school by a circuitous road, which carried him past a place where a thrashing-

machine was generally at work. Perhaps, had it not been for this casualty, he might have adopted another profession than the one in which he so much distinguished himself, before ever reflecting that there was such a thing as machinery in the world. It was the appearance of the celebrated comet of 1744 which first attracted the imagination of LALANDE, then a boy of twelve years of age, to astronomy. The great LINNÆUS was probably made a botanist by the circumstance of his father having a few rather uncommon plants in his garden. HARRISON is said to have been originally inspired with the idea of devoting himself to the constructing of marine time-pieces by his residence in view of the sea. It was a voyage to the Mediterranean which first gave to VERNET his enthusiasm for marine painting. Other great painters have probably been indebted to still slighter circumstances for their first introduction to the art. CLAUDE LORRAINE derived his taste for design from frequenting the workshop of his brother, who was a wood-engraver. The elder CARAVAGGIO (Polidoro Caldara), was born of poor parents, at the town in the north of Italy from which he takes his common designation; and having, when a young man, wandered as far as Rome in search of work, was at last engaged to carry mortar for the fresco-painters, who were then employed in decorating the Vatican, which humble occupation, giving him the opportunity of observing the operations of these artists, first inspired him with the ambition of becoming himself a painter. The commencement of the history of MICHAEL ANGELO CARAVAGGIO is not very different. He, as his name denotes, was a native of the same place as Polidoro, though he flourished more than half a century later, and he is recorded to have had his love of the art first awakened by being, when a boy, employed by his father, who was a mason, to mix plaster for some fresco-painters at Milan. Another Italian painter, CAVEDONE, owed his

introduction to his profession to the accident of having been received, after he had been turned out of doors by his father, into the service of a gentleman who happened to possess a good collection of pictures, which he began by copying in ink with a pen. JAMES TASSIE, the celebrated modeller and maker of paste gems, commenced life as a stone-mason in Glasgow, and was first prompted to aspire to something beyond his humble occupation by having gone by chance on a holiday to see the paintings in the Academy for instruction in the Fine Arts established in that city by Messrs. Robert and Andrew Foulis, the printers. Having obtained admission to the academy as a pupil, he continued to work at his original trade to maintain himself, until he had acquired a knowledge of drawing. Tassie became eventually the most distinguished artist in his line in Europe; and carried, indeed, the art itself which he practised to a degree of perfection that before his time had not been approached. A descriptive catalogue of his pastes, which, at the time of his death, in 1799, amounted to twenty thousand, has been published in two quarto volumes, and among them are enumerated imitations, or rather *fac-similes*, of all the more celebrated gems, ancient and modern, known to be in existence.

The taste of the youthful prodigy, CHATTERTON, for the study of English antiquities is related to have been first awakened by the accidental circumstance of a quantity of ancient parchment manuscripts having fallen into his hands, which had been taken by his father, who kept a school, from an old chest in the church of St. Mary Redcliffe, at Bristol, to make covers for the writing-books used by his scholars. GEORGE EDWARDS, the naturalist, the author of the splendid book entitled "History of Birds," in four volumes quarto, was in the first instance apprenticed to a London merchant; but the accident of a bed-room being assigned to him which contained a collection of books that had been

left by a former lodger of his master's gradually formed in him so strong an attachment to study, and especially to natural history, to which many of the volumes related (their original possessor having been a medical gentleman), that he resolved to give up commerce, and to dedicate his life to literature and science. He held the situation of Librarian to the College of Physicians, and died at the age of eighty in 1773. The late eminent French botanist, VILLARS, in like manner, after having set out in life as a farmer, suddenly became enamoured of natural science, from looking into an old work on medicine which he chanced to find at a house where he was staying.

The French dramatist, JOLY, was the son of a keeper of a coffee-house in Paris, where a sort of literary club was wont to meet. One evening a tale of Madame de Murat's was the subject of their conversation; and the warm encomiums they united in bestowing upon it arrested in an extraordinary degree the attention of Joly. As soon as the club broke up he retired to his bedroom, spent the night in writing, and, before morning, had contrived the plan of a drama in verse, and advanced a considerable way in its composition. A few days more enabled him to complete his work; which, to the astonishment of his father's literary guests, he put into their hands at their next meeting, requesting their opinion of it. The proposal of having the performance read excited at first only the merriment of the assembled critics; but its merits were soon felt and acknowledged; and, when it had been heard to the end, there was only one opinion as to the certainty of its success on the stage. Accordingly, the piece, entitled "A School for Lovers," in three acts, was brought out and received with great applause. Joly now gave himself up to literature; but, although he afterwards produced several other dramatic compositions, it is remarked that scarcely any of them equalled his first performance.

The late French Orientalist, JOURDAIN, was originally intended for the law, and had been placed with a notary, when, in the year 1805, the admiration he heard bestowed upon Anquetil Du Perron, then newly dead, who had in his youth enlisted as a private soldier in a corps going to India, in order that he might enjoy an opportunity of studying the Eastern languages, kindled in him an irresistible passion to devote himself to similar pursuits. Jourdain was at this time only seventeen years of age, and died when just thirty. Yet in that short interval he had acquired a distinguished name as an Oriental scholar, and had given to the world a variety of able works; among which may be especially mentioned a very learned statistical account of Persia, in five volumes, which appeared when the author was only in his twenty-sixth year.

We will mention only a very few other instances of the manner in which accidental, and apparently trivial, occurrences have sometimes operated in exciting latent genius. The Italian sculptor BANDINELLI, whose name has been mentioned in a former chapter, is said to have been first led to turn his thoughts to the art of statuary by a great fall of snow which happened when he was a boy at his native city of Florence. He fashioned a statue of the snow, which was conceived to give a striking indication of his talent for modelling. The late eminent English engraver RICHARD EARLOM, is reported to have been originally inspired with a taste for the art of design by seeing the ornaments on the Lord Mayor's state coach, which happened to have been painted by the elegant pencil of Cipriani. Another of our countrymen, highly distinguished as an engraver of scientific subjects, the late Mr. LOWRY, was induced to embrace the profession in which he afterwards acquired so much celebrity by the accidental inspection, when he was about fifteen years of age, of a portfolio of prints by Woollett, another of our eminent engravers. Thus, too,

the famous German printer, BREITKOPF, the inventor of moveable types for printing music, and of many other improvements in typography and letter-founding, was first inspired with a liking for his profession, which he had originally embraced on compulsion, by falling in with a work of Albert Durer, in which the shapes of the letters are deduced from mathematical principles.

The celebrated BERNARD PALISSY, to whom France was indebted, in the sixteenth century, for the introduction of the manufacture of enamelled pottery, had his attention first attracted to the art, his improvements in which form to this time the glory of his name among his countrymen, by having one day seen by chance a beautiful enamelled cup, which had been brought from Italy. He was then struggling to support his family by his attempts in the art of painting, in which he was self-taught; and it immediately occurred to him that, if he could discover the secret of making these cups, his toils and difficulties would be at an end. From that moment his whole thoughts were directed to this object; and in one of his works he has himself given us such an account of the unconquerable zeal with which he prosecuted his experiments as it is impossible to read without the deepest interest. For some time he had little or nothing to expend upon the pursuit which he had so much at heart; but at last he happened to receive a considerable sum of money for a work which he had finished, and this enabled him to commence his researches. He spent the whole of his money, however, without meeting with any success, and he was now poorer than ever. Yet it was in vain that his wife and his friends besought him to relinquish what they deemed his chimerical and ruinous project. He borrowed more money, with which he repeated his experiments; and, when he had no more fuel wherewith to feed his furnaces, he cut down his chairs and tables for that purpose. Still his success was inconsiderable. He was now actually obliged to give a person

who had assisted him part of his clothes by way of remuneration, having nothing else left; and, with his wife and children starving before his eyes, and by their appearance silently reproaching him as the cause of their sufferings, he was at heart miserable enough. But he neither despaired, nor suffered his friends to know what he felt; preserving, in the midst of all his misery, a gay demeanour, and losing no opportunity of renewing his pursuit of the discovery which he all the while felt confident he should one day achieve. And at last, after sixteen years of persevering exertion, his efforts were crowned with complete success, and his fortune was made. Palissy was, in all respects, one of the most extraordinary men of his time; in his moral character displaying a high-mindedness and commanding energy altogether in harmony with the reach and originality of conception by which his understanding was distinguished. Although a Protestant, he had escaped, through the royal favour, from the massacre of St. Bartholomew; but, having been soon after shut up in the Bastille, he was visited in his prison by the king, who told him, that, if he did not comply with the established religion, he should be forced, however unwillingly, to leave him in the hands of his enemies. "Forced!" replied Palissy. "This is not to speak like a king; but they who force you cannot force me; I can die!" He never regained his liberty, but ended his life in the Bastille in the ninetieth year of his age.*

* A much more complete account of this remarkable person than previously existed has now been given to the world in "The Life of Bernard Palissy, of Saintes; his Labours and Discoveries in Art and Science. By Henry Morley." 8vo. Lon. 1852.

CHAPTER XIII.

BENJAMIN FRANKLIN:—EARLY LIFE.

THE name we are now to mention is perhaps the most distinguished to be found in the annals of self-education. Of all those, at least, who, by their own efforts, and without any usurpation of the rights of others, have raised themselves to a high social position, there is no one, as has been remarked, the close of whose history presents so great a contrast to its commencement as that of BENJAMIN FRANKLIN. It fortunately happens, too, in his case, that we are in possession of abundant information as to the methods by which he contrived to surmount the many disadvantages of his original condition; to raise himself from the lowest poverty and obscurity to affluence and distinction; and above all, in the absence of instructors, and of the ordinary helps to the acquisition of knowledge, to enrich himself so plentifully with the treasures of literature and science, as not only to be enabled to derive from that source the chief happiness of his life, but to succeed in placing himself high among the most famous writers and philosophers of his time. It is in this latter point of view, chiefly, that at present we propose to consider him; and we shall avail ourselves, as liberally as our limits will permit, of the ample details, respecting the early part of his life especially, that have been given to the public, in order to present to the reader a full and distinct account of the successive steps of a progress so eminently worthy of being recorded, both from the interesting nature of the narrative, and from its value as an example and lesson, perhaps the most instructive

to be anywhere found, for all who have to be either the architects of their own fortunes, or their own guides in the pursuit of knowledge.

Franklin has himself told us the story of his early life inimitably well. His account is given in the form of a letter to his eldest son, and does not appear to have been written originally with any view to publication. "From the poverty and obscurity," he says, "in which I was born, and in which I passed my earliest years, I have raised myself to a state of affluence, and some degree of celebrity in the world. As constant good fortune has accompanied me, even to an advanced period of life, my posterity will perhaps be desirous of learning the means which I employed, and which, thanks to Providence, so well succeeded with me. They may also deem them fit to be imitated, should any of them find themselves in similar circumstances." It is not many years since this letter was, for the first time, given to the world by the grandson of the illustrious writer, only a small portion of it having previously appeared, and that merely a re-translation into English from a French version of the original manuscript which had been published at Paris.

Franklin was born at Boston, in North America, on the 17th of January, 1706; the fifteenth child of his parents, and perhaps expected to prove the last (whence, probably, his Christian name), although, as it happened, there were still two daughters to come. His father, who had emigrated from England about twenty-four years before, followed the occupation of a soap-boiler and tallow-chandler, a business to which he had not been bred, and by which he seems with difficulty to have been able to support his numerous family. At first it was proposed to make Benjamin a clergyman; and he was accordingly, having before learned to read, put to the grammar-school at eight years of age;—an uncle, whose namesake he was, and who appears to have

been an ingenious man, encouraging the project by offering to give him several volumes of sermons to set up with, which he had taken down, in a short-hand of his own invention, from the different preachers he had been in the habit of hearing. This person, who was now advanced in life, had been only a common silk-dyer, but had been both a great reader and writer in his day, having filled two quarto volumes with his own manuscript poetry. What he was most proud of, however,



BENJAMIN FRANKLIN.

was his short-hand, which he was very anxious that his nephew should learn. But young Franklin had not been quite a year at the grammar-school, when his father began to reflect that the expense of a college education for him was what he could not very well afford; and that, besides, the church in America was a poor profession after all. He was accordingly re-

moved, and placed for another year under a teacher of writing and arithmetic; after which his father took him home, when he was no more than ten years old, to assist him in his own business. He was now, therefore, employed, he tells us, in cutting wicks for the candles, filling the moulds for cast candles, attending the shop, going errands, and other drudgery of the same kind. He showed so much dislike, however, to this business, that his father, afraid he would break loose and go to sea, as one of his elder brothers had done, found it advisable, after a trial of two years, to look about for another occupation for him; and after he had been taken round to see a great many different sorts of tradesmen at their work, it was agreed upon that he should be bound apprentice to a cousin of his own, who was a cutler. But he had been only for some days on trial at this business when, his father thinking the apprentice-fee which his cousin asked too high, he was again taken home. In this state of things it was finally resolved to place him with his brother James, who had been bred a printer, and had just returned from England, and set up on his own account at Boston. To him, therefore, Benjamin was bound apprentice, when he was yet only in his twelfth year, on an agreement that he should remain with him in that capacity 'till he reached the age of twenty-one.

One of the principal reasons which induced his father to determine upon this profession for him was the fondness he had from his infancy shown for reading. All the money he could get hold of used to be eagerly laid out in the purchase of books. His father's small collection consisted principally of works in controversial divinity, a subject which could not be expected to be very interesting to a reader of his age; but, such as they were, he went through most of them. Fortunately there was also a copy of "Plutarch's Lives," which he says he read abundantly. This and a book by Daniel

Defoe, called "An Essay on Projects," he seems to think were the two works from which he derived the most advantage. His new profession of a printer, by procuring him the acquaintance of some booksellers' apprentices, enabled him considerably to extend his acquaintance with books by frequently borrowing a volume in the evening, which he sat up reading the greater part of the night, in order that he might return it in the morning, lest it should be missed. But these solitary studies did not prevent him from soon acquiring a great proficiency in his business, in which he was every day becoming more useful to his brother. After some time, too, his access to books was greatly facilitated by the kindness of a liberal-minded merchant who was in the habit of frequenting the printing-office, and, being possessed of a tolerable library, invited young Franklin, whose industry and intelligence had attracted his attention, to come to see it; after which he allowed him to borrow from it such volumes as he wished to read.

Our young student was now to distinguish himself in a new character. The perusal of the works of others suggested to him the idea of trying his own talent at composition; and his first attempts in this way were a few pieces of poetry. Verse, it may be observed, is generally the earliest sort of composition attempted either by nations or individuals, and for the same reasons in both cases—namely, first, because poetry has peculiar charms for the unripe understanding; and, secondly, because people at first find it difficult to conceive what composition is at all, independently of such measured cadences and other regularities as constitute verse. Franklin's poetical fit, however, did not last long. Having been induced by his brother to write two ballads, he was sent to sell them through the streets; and one of them, at least, being on a subject that had just made a good deal of noise in the place,

sold, as he tells us, prodigiously. But his father, who, without much literary knowledge, was a man of a remarkably sound and vigorous understanding, soon brought down the rising vanity of the young poet, by pointing out to him the many faults of his performances, and convincing him what wretched stuff they really were. Having been told, too, that verse-makers were generally beggars, with his characteristic prudence he determined to write no more ballads.

He had an intimate acquaintance of the name of Collins, who was, like himself, passionately fond of books, and with whom he was in the habit of arguing upon such subjects as they met with in the course of their reading. Among other questions which they discussed in this way, one accidentally arose on the abilities of women, and the propriety of giving them a learned education. Collins maintained their natural unfitness for any of the severer studies, while Franklin took the contrary side of the question—"perhaps," he says, "a little for dispute sake." His antagonist had always the greater plenty of words; but Franklin thought that, on this occasion in particular, his own arguments were rather stronger; and, on their parting without settling the point, he sat down and put a summary of what he advanced in writing, which he copied out and sent to Collins. This gave a new form to the discussion, which was now carried on for some time by letters, of which three or four had been written on both sides, when the correspondence fell into the hands of Franklin's father. His natural acuteness and good sense enabled him here again to render an essential service to his son, by pointing out to him how far he fell short of his antagonist in elegance of expression, in method, and in perspicuity, though he had the advantage of him in correct spelling and punctuation, which he evidently owed to his experience in the printing-office. From that moment Franklin determined

to spare no pains in endeavouring to improve his style; and we shall give in his own words, the method he pursued for that end.

"About this time," he says, "I met with an odd volume of the Spectator; I had never before seen any of them. I bought it, read it over and over, and was much delighted with it. I thought the writing excellent; and wished, if possible, to imitate it. With that view, I took some of the papers, and making short hints of the sentiments in each sentence, laid them by a few days; and then, without looking at the book, tried to complete the papers again, by expressing each hinted sentiment at length, and as fully as it had been expressed before, in any suitable words that should occur to me. Then I compared my Spectator with the original, discovered some of my faults, and corrected them. But I found I wanted a stock of words, or a readiness in recollecting and using them, which I thought I should have acquired before that time if I had gone on making verses; since the continual search for words of the same import, but of different length, to suit the measure, or of different sound for the rhyme, would have laid me under a constant necessity of searching for variety, and also have tended to fix that variety in my mind, and make me master of it. Therefore, I took some of the tales in the Spectator, and turned them into verse; and after a time, when I had pretty well forgotten the prose, turned them back again. I also sometimes jumbled my collection of hints into confusion; and, after some weeks, endeavoured to reduce them into the best order, before I began to form the full sentences and complete the subject. This was to teach me method in the arrangement of the thoughts. By comparing my work with the original, I discovered many faults and corrected them; but I sometimes had the pleasure to fancy that in certain particulars of small consequence I had been fortunate enough to improve the method or the language; and

this encouraged me to think that I might, in time, come to be a tolerable English writer, of which I was extremely ambitious."

Even at this early age nothing could exceed the perseverance and self-denial which he displayed, in pursuing his favourite object of cultivating his mental faculties to the utmost of his power. When only sixteen, he chanced to meet with a book in recommendation of a vegetable diet, one of the arguments at least in favour of which made an immediate impression upon him—namely, its greater cheapness; and from this and other considerations, he determined to adopt that way of living for the future. Having taken this resolution, he proposed to his brother, if he would give him weekly only half what his board had hitherto cost, to board himself, an offer which was immediately accepted. He presently found that by adhering to his new system of diet he could still save half what his brother allowed him. "This," says he, "was an additional fund for buying of books: but I had another advantage in it. My brother and the rest going from the printing-house to their meals, I remained there alone, and dispatching presently my light repast (which was often no more than a biscuit, or a slice of bread, a handful of raisins, or a tart from the pastrycook's, and a glass of water), had the rest of the time, till their return, for study; in which I made the greater progress, from that greater clearness of head and quicker apprehension which generally attend temperance in eating and drinking." It was about this time that, by means of Cocker's Arithmetic, he made himself master of that science, which he had twice attempted in vain to learn while at school; and that he also obtained some acquaintance with the elements of geometry, by the perusal of a treatise on Navigation. He mentions, likewise, among the works which he now read, "Locke on the Human Understanding," and the Port-Royal "Art of Thinking," together with two little

sketches on the arts of Logic and Rhetoric which he found at the end of an English Grammar, and which initiated him in the Socratic mode of disputation, or that way of arguing by which an antagonist, by being questioned, is imperceptibly drawn into admissions which are afterwards dexterously turned against him. Of this method of reasoning he became, he tells us, excessively fond, finding it very safe for himself and very embarrassing for those against whom he used it; but he afterwards abandoned it, apparently from a feeling that it gave advantages rather to cunning than to truth, and was better adapted to gain victories in conversation than either to convince or to inform.

A few years before this his brother had begun to publish a newspaper, the second that had appeared in America. This brought most of the Boston people, who had anything of a literary turn, occasionally to the printing-office; and young Franklin often heard them conversing about the articles that appeared in the newspaper, and the approbation which particular ones received. At last, inflamed with the ambition of sharing in this sort of fame, he resolved to try how a communication of his own would succeed. Having written his paper, therefore, in a disguised hand, he put it at night under the door of the printing-office, where it was found in the morning, and submitted to the consideration of the critics when they met as usual. "They read it," says he; "commented on it in my hearing; and I had the exquisite pleasure of finding it met with their approbation; and that, in their different guesses at the author, none were named but men of some character among us for learning and ingenuity." "I suppose," he adds, "that I was rather lucky in my judges, and that they were not really so very good as I then believed them to be." Encouraged, however, by the success of this attempt, he sent several other pieces to the press in the same way, keeping his secret, till, as he expresses it, all

his fund of sense for such performances was exhausted. He then discovered himself, and immediately found that he began to be looked upon as a person of some consequence by his brother's literary acquaintances.

This newspaper soon after afforded him, very unexpectedly, an opportunity of extricating himself from his indenture to his brother, who had all along treated him with great harshness, and to whom his rising literary reputation only made him more an object of envy and dislike. An article which they had admitted having offended the local government, his brother, as proprietor of the paper, was not only sentenced to a month's imprisonment, but prohibited from any longer continuing to print the offensive journal. In these circumstances, it was determined that it should appear for the future in the name of Benjamin, who had managed it during his brother's confinement; and, in order to prevent it being alleged that the former proprietor was only screening himself behind one of his apprentices, the indenture by which the latter was bound was given up to him; he at the same time, in order to secure to his brother the benefit of his services, signing new indentures for the remainder of his time, which were to be kept private. "A very flimsy scheme it was," says Franklin; "however, it was immediately executed; and the paper was printed accordingly under my name for several months. At length, a fresh difference arising between my brother and me, I took upon me to assert my freedom, presuming that he would not venture to produce the new indenture. It was not fair in me to take this advantage; and this I therefore reckon one of the first *errata* of my life; but the unfairness of it weighed little with me, when under the impressions of resentment for the blows his passion too often urged him to bestow upon me, though he was otherwise not an ill-natured man: perhaps I was too saucy and provoking."

Finding, however, that his brother, in consequence of

this exploit, had taken care to give him such a character to all those of his own profession in Boston, that nobody would employ him there, he now resolved to make his way to New York, the nearest place where there was a printer; and accordingly, after selling his books to raise a little money, he embarked on board a vessel for that city, without communicating his intention to his friends, who he knew would oppose it. In three days he found himself at the end of his voyage, near three hundred miles from his home, at the age of seventeen, without the least recommendation, as he tells us, or knowledge of any person in the place, and with very little money in his pocket. Worst of all, upon applying to the only printer likely to give him any employment, he found that this person had nothing for him to do, and that the only way in which he could serve him was by recommending him to proceed to Philadelphia, a hundred miles farther, where he had a son, who, he believed, might employ him. We cannot follow our runaway through the disastrous incidents of this second journey; but, for the reason which he states himself, we shall allow him to give his own most graphic description of his first appearance in Philadelphia:—

After concluding the account of his voyage, "I have been the more particular," he says, "in this description of my journey, and shall be so of my first entry into that city, that you may, in your mind, compare such unlikely beginnings with the figure I have since made there. I was in my working dress, my best clothes coming round by sea. I was dirty from my being so long in the boat; my pockets were stuffed out with shirts and stockings; and I knew no one, nor where to look for lodging. Fatigued with walking, rowing, and the want of sleep, I was very hungry; and my whole stock of cash consisted in a single dollar, and about a shilling in copper coin, which I gave to the boatmen for my passage. At first they refused it, on account of my having rowed; but I

insisted on their taking it. Man is sometimes more generous when he has little money than when he has plenty; perhaps to prevent his being thought to have but little. I walked towards the top of the street, gazing about till near Market-street, where I met a boy with bread. I had often made a meal of dry bread, and, inquiring where he had bought it, I went immediately to the baker's he directed me to. I asked for biscuits, meaning such as we had at Boston; that sort, it seems, was not made in Philadelphia. I then asked for a three-penny loaf, and was told they had none. Not knowing the different prices, nor the names of the different sorts of bread, I told him to give me three-penny worth of any sort. He gave me, accordingly, three great puffy rolls. I was surprised at the quantity, but took it; and having no room in my pockets, walked off with a roll under each arm, and eating the other. Thus I went up Market-street, as far as Fourth-street, passing by the door of Mr. Read, my future wife's father, when she, standing at the door, saw me, and thought I made, as I certainly did, a most awkward, ridiculous appearance. Then I turned and went down Chesnut-street and part of Walnut-street, eating my roll all the way, and coming round found myself again at Market-street Wharf, near the boat I came in, to which I went for a draught of the river-water; and being filled with one of my rolls, gave the other two to a woman and her child that came down the river in the boat with us, and were waiting to go farther. Thus refreshed, I walked again up the street, which by this time had many clean-dressed people in it, who were all walking the same way. I joined them, and thereby was led into the great meeting-house of the Quakers, near the market. I sat down among them; and after looking round a while, and hearing nothing said, being very drowsy, through labour and want of rest the preceding night, I fell fast asleep, and continued so till the meeting broke up, when some one was kind enough

to rouse me. This, therefore, was the first house I was in, or slept in, in Philadelphia."

Refreshed by his brief sojourn in this cheap place of repose, he then set out in quest of a lodging for the night. Next morning he found the person to whom he had been directed, who was not, however, able to give him any employment; but upon applying to another printer in the place, of the name of Keimer, he was a little more fortunate, being set by him, in the first instance, to put an old press to rights, and afterwards taken into regular work. He had been some months at Philadelphia, his relations in Boston knowing nothing of what had become of him, when a brother-in-law, who was the master of a trading sloop, happening to hear of him in one of his voyages, wrote to him in very earnest terms to entreat him to return home. The letter which he sent in reply to this application reaching his brother-in-law when he chanced to be in company with Sir William Keith, the Governor of the Province, it was shown to that gentleman, who expressed considerable surprise on being told the age of the writer; and immediately said that he appeared to be a young man of promising parts, and that if he would set up on his own account in Philadelphia, where the printers were wretched ones, he had no doubt he would succeed; for his part he would procure him the public business, and do him every service in his power. Some time after this, Franklin, who knew nothing of what had taken place, was one day at work along with his master near the window, when "we saw," says he, "the Governor and another gentleman (who proved to be Colonel French, of Newcastle, in the province of Delaware), finely dressed, come directly across the street to our house, and heard them at the door. Keimer ran down immediately, thinking it a visit to him; but the Governor inquired for me, came up, and with a condescension and politeness I had been quite unused to,

made me many compliments, desired to be acquainted with me, blamed me kindly for not having made myself known to him when I first came to the place, and would have me away with him to the tavern, where he was going with Colonel French, to taste, as he said, some excellent Madeira. I was not a little surprised, and Keimer stared with astonishment."

The reader already perceives that Sir William must have been rather an odd sort of person; and this becomes still more apparent in the sequel of the story. Having got his young protégé to the tavern, he proposed to him, over their wine, that he should as soon as possible set up in Philadelphia as a master printer, only continuing to work with Keimer till an opportunity should offer of a passage to Boston, when he would return home, to arrange the matter with his father, who, the Governor had no doubt, would, upon a letter from him, at once advance his son the necessary funds for commencing business. Accordingly, Franklin set out for Boston by the first vessel that sailed; and, upon his arrival, was very kindly received by all his family, except his brother, and surprised his father not a little by presenting him with the Governor's letter. For some time his father said little or nothing on the subject, merely remarking, that Sir William must be a person of small discretion, to think of setting a youth up in business who wanted three years to arrive at man's estate. But at last he decidedly refused to have anything to do with the arrangement; and Franklin returned to his patron to tell him of his bad success, going this time, however, with the consent and blessing of his parents, who, finding how industrious he had been while in Philadelphia, were willing that he should continue there. When Franklin presented himself to Sir William with his father's answer to the letter he had been honoured with from that functionary, the Governor observed that he was too prudent: "but since he will

not set you up," added he, "I will do it myself." It was finally agreed that Franklin should proceed in person to England, to purchase types and other necessary articles, for which the Governor was to give him letters of credit to the extent of a hundred pounds.

CHAPTER XIV.

LIFE OF FRANKLIN CONTINUED.

After repeated applications to the Governor for the promised letters of credit, Franklin was at last sent on board the vessel for England, which was just on the point of sailing, with an assurance that Colonel French should be sent to him with the letters immediately. That gentleman soon after made his appearance, bearing a packet of dispatches from the Governor: in this packet Franklin was informed his letters were. Accordingly, when they got into the British Channel, the Captain having allowed him to search for them among the others, he found several addressed to his care, which he concluded of course to be those he had been promised. Upon presenting one of them, however, to a stationer, to whom it was directed, the man, having opened it, merely said, "Oh, this is from Riddlesdon (an attorney in Philadelphia, whom Franklin knew to be a thorough knave); I have lately found him to be a complete rascal;" and, giving back the letter, turned on his heel, and proceeded to serve his customers. Upon this, Franklin's confidence in his patron began to be a little shaken; and, after reviewing the whole affair in his own mind, he resolved to lay it before a very intelligent mercantile gentleman, who had come over from America with them, and with whom he had contracted an intimacy on the passage. His friend very soon put an end to his doubts. "He let me," says Franklin, "into Keith's character; told me there was not the least probability that he had written any letters for me; that no one who knew him had the smallest dependence on him; and he laughed

at the idea of the Governor's giving me a letter of credit, having, as he said, no credit to give."

Thus thrown once more on his own means, our young adventurer found there was no resource for him but to endeavour to procure some employment at his trade in London. Accordingly, having applied to a Mr. Palmer, a printer of eminence in Bartholomew-close, his services were accepted, and he remained there for nearly a year. During this time, although he was led into a good deal of idleness by the example of a friend, somewhat older than himself, he by no means forgot his old habits of reading and study. Having been employed in printing a second edition of Wollaston's "Religion of Nature," he was led by his perusal of the work to compose and publish a small pamphlet in refutation of some of the author's positions, which, he tells us, he did not afterwards look back upon as altogether a wise proceeding. He employed the greater part of his leisure more profitably in reading a great many works, which (circulating libraries, he remarks, not being then in use) he borrowed, on certain terms that were agreed upon between them, from a bookseller, whose shop was next door to his lodgings in Little Britain, and who had an immense collection of second-hand books. His pamphlet, however, was the means of making him known to a few of the literary characters then in London, among the rest to the noted Dr. Mandeville, author of the "Fable of the Bees;" and to Dr. Pemberton, Sir Isaac Newton's friend, who promised to give him an opportunity some time or other, of seeing that great man: but this, he says, never happened. He also became acquainted about the same time with the famous collector and naturalist, Sir Hans Sloane, the founder of the British Museum, who had heard of some curiosities which Franklin had brought over from America. Among these was a purse made of *asbestos*, which Sir Hans purchased from him.

While with Mr. Palmer, and afterwards with Mr. Watts, near Lincoln's Inn Fields,* he gave very striking evidence of those habits of temperance, self-command, industry, and frugality, which distinguished him through after-life, and were undoubtedly the source of much of the success that attended his persevering efforts to raise himself from the humble condition in which he passed his earlier years. While Mr. Watts's other workmen spent a great part of every week's wages on beer, he drank only water, and found himself a good deal stronger, as well as much more clear-headed, on his light beverage, than they on their strong potations. "From my example," says he, "a great many of them left off their muddling breakfast of beer, bread, and cheese, finding they could with me be supplied from a neighbouring house with a large porringer of hot water-gruel sprinkled with pepper, crumbled with bread, and a bit of butter in it, for the price of a pint of beer, viz.,—three half-pence. This was a more comfortable, as well as a cheaper breakfast, and kept their heads clearer. Those who continued sotting with their beer all day, were often, by not paying, out of credit at the alehouse, and used to make interest with me to get beer,—*their light*, as they phrased it, *being out*. I watched the pay-table on Saturday night, and collected what I stood engaged for them, having to pay sometimes near thirty shillings a week on their

* It is said that when Franklin was in England in 1766, holding the appointment of Provincial Agent for the State of Pennsylvania, he one day went to Mr. Hett's printing office, in Wild Court, Wild Street, Lincoln's Inn Fields, and, having entered the press-room, walked up to a particular press, and thus addressed the two men who were at work at it:—"Come, my friends, we will drink together; it is now forty years since I worked like you at this press, a journeyman printer." He then sent for a gallon of porter, and they drank success to printing. This press was some years ago in the possession of Messrs. Cox and Baylis, Great Queen Street, but has since been sold to 'The Franklin Association,' and sent to America.

accounts. This, and my being esteemed a pretty good *riggite*, that is, a jocular verbal satirist, supported my consequence in the society. My constant attendance (I never making a *St. Monday*) recommended me to the master; and my uncommon quickness at composing occasioned my being put upon works of despatch, which are generally better paid: so I went on now very agreeably."

He spent about eighteen months altogether in London, during most part of which time he worked hard, he says, at his business, and spent but little upon himself except in seeing plays, and in books. At last his friend Mr. Denham, the gentleman with whom, as we mentioned before, he had got acquainted on his voyage to England, informed him he was going to return to Philadelphia to open a store, or mercantile establishment, there, and offered him the situation of his clerk at a salary of fifty pounds. The money was less than he was now making as a compositor; but he longed to see his native country again, and he accepted the proposal. Accordingly they set sail together; and, after a long voyage, arrived in Philadelphia on the 11th of October, 1726. Franklin was at this time only in his twenty-first year; and he mentions having formed, and committed to writing, while at sea, a plan for regulating the future conduct of his life. This unfortunately has been lost; but he tells us himself, that, although conceived and determined upon when he was so young, it had yet "been pretty faithfully adhered to quite through to old age."

Mr. Denham had only begun business for a few months when he died; and Franklin was once more left upon the world. He now engaged again with his old master, Keimer, the printer, who had got a better house, and plenty of new types, though he was still as ignorant of his business as he was at the time of Franklin's former connexion with him. While in this situation Franklin got acquainted with several persons, like himself, fond of literary pursuits; and as the men never worked on

Saturday, that being Keimer's self-appointed Sabbath, he had the whole day for reading.* He also showed his ingenuity, and the fertility of his resources, on various occasions. They wanted some new types, which, there being no letter-foundry in America, were only to be procured from England; but Franklin, having seen types cast in London, though he had paid no particular attention to the process, contrived a mould, made use of the letters they had as punches, struck the matrices in lead, and thus supplied, as he tells us, in a pretty tolerable way, all deficiencies. "I also," he adds, "engraved several things, on occasion; made the ink; I was warehouseman; and, in short, quite a *factotum*."

He did not, however, remain long with Keimer, who had engaged him only that he might have his other workmen taught through his means; and, accordingly, when this object was in some sort attained, contrived to pick a quarrel with him, which produced an immediate separation. He then entered into an agreement with one of his fellow-workmen, of the name of Meredith, whose friends were possessed of money, to begin business in Philadelphia in company with him, the understanding being that Franklin's skill should be placed against the capital to be supplied by Meredith. While he and his friend, however, were secretly preparing to put their plan into execution, he was induced to return for a few months to Keimer, on his earnest invitation, to enable him to perform a contract for the printing of some paper-money for the State of New Jersey, which required a variety of cuts and types that nobody else in the place could supply; and, the two having gone together to Burlington to superintend this business, Franklin was fortunate enough, during the three months

* Keimer had peculiar notions upon religious observances, and, amongst other things, fancied it a Christian duty to observe the Sabbath on the last day of the week.

he remained in that city, to acquire, by his agreeable manners and intelligent conversation, the friendship of several of the principal inhabitants, with whom his employment brought him into connexion. Among these he mentions particularly, Isaac Decow, the surveyor-general. "He was," says Franklin, "a shrewd, sagacious, old man, who told me that he began for himself, when young, by wheeling clay for the brickmakers, learned to write after he was of age, carried the chain for surveyors, who taught him surveying, and he had now by his industry acquired a good estate; and, said he, I foresee that you will soon work this man (Keimer) out of his business, and make a fortune in it at Philadelphia. He had then not the least intimation of my intention to set up there or any where."

Soon after he returned to Philadelphia, the types that had been sent for from London arrived; and, settling with Keimer, he and his partner took a house and commenced business. "We had scarce opened our letters,' says he, "and put our press in order, before George House, an acquaintance of mine, brought a countryman to us, whom he had met in the street, inquiring for a printer. All our cash was now expended in the variety of particulars we had been obliged to procure, and this countryman's five shillings, being our first-fruits, and coming so seasonably, gave me more pleasure than any crown I have since earned; and, from the gratitude I felt towards House, has made me often more ready than perhaps I otherwise should have been to assist young beginners." He had in the autumn of the preceding year, suggested to a number of his acquaintances a scheme for forming themselves into a club for mutual improvement; and they had accordingly been in the habit of meeting every Friday evening under the name of the Junto. All the members of this association exerted themselves in procuring business for him; and one of them, named Breinthal, obtained from the Quakers

the printing of forty sheets of a history of that sect of religionists, then preparing at the expense of the body. "Upon these," says Franklin, "we worked exceeding hard, for the price was low. It was a folio. I composed a sheet a day, and Meredith worked it off at press. It was often eleven at night, and sometimes later, before I had finished my distribution for the next day's work; for the little jobs sent in by our other friends, now and then, put us back. But so determined was I to continue doing a sheet a day of the folio, that one night, when, having imposed my forms, I thought my day's work over, one of them by accident was broken, and two pages (the half of the day's work) reduced to *pye*, I immediately distributed and composed it over again before I went to bed; and this industry, visible to our neighbours, began to give us character and credit." The consequence was that business, and even offers of credit, came to them from all hands.

They soon found themselves in a condition to think of establishing a newspaper; but, Franklin having inadvertently mentioned this scheme to a person who came to him wanting employment, that individual carried the secret to their old master, Keimer, with whom he, as well as themselves, had formerly worked; and he immediately determined to anticipate them by issuing proposals for a paper of his own. The manner in which Franklin met and defeated this treachery is exceedingly characteristic. There was another paper published in the place, which had been in existence for some years; but it was altogether a wretched affair; and owed what success it had merely to the absence of all competition. For this print, however, Franklin, not being able to commence his own paper immediately, set about writing, in conjunction with a friend, a series of amusing communications under the title of the "Busy Body," which the publisher printed, of course, very gladly. "By this means," says he, "the attention of the public was

fixed on that paper; and Keimer's proposals, which we burlesqued and ridiculed, were disregarded. He began his paper, however, and before carrying it on three-quarters of a year, with at most only ninety subscribers, he offered it to me for a trifle; and I, having been ready some time to go on with it, took it in hand directly, and it proved in a few years extremely profitable to me." The paper, indeed, had no sooner got into Franklin's hands than its success equalled his most sanguine expectations. Some observations which he wrote and printed in it on a colonial subject, then much talked of, excited so much attention among the leading people of the place, that it obtained the proprietors many friends in the House of Assembly, and they were, on the first opportunity, appointed printers to the house. Fortunately, too, certain events occurred about this time which ended in the dissolution of Franklin's connexion with Meredith, who was an idle, drunken fellow, and had all along been a mere incumbrance upon the concern. His father failing to advance the capital which had been agreed upon, when payment was demanded at the usual time by their paper-merchant and other creditors, he proposed to Franklin to relinquish the partnership, and leave the whole in his hands, if the latter would take upon him the debts of the company, return to his father what he had advanced on their commencing business, pay his little personal debts, and give him thirty pounds and a new saddle. By the kindness of two friends, who, unknown to each other, came forward unasked to tender their assistance, Franklin was enabled to accept of this proposal; and thus, about the year 1729, when he was yet only in the twenty-fourth year of his age, he found himself, after all his disappointments and vicissitudes, with nothing, indeed, to depend upon but his own skill and industry for gaining a livelihood, and for extricating himself from debt, but yet in one sense fairly established in life, and with at least a prospect of well-doing before him.

Having followed his course thus far with so minute an observance, we need not trace the remainder of his career with the same particularity. His subsequent efforts in the pursuit of fortune and independence were, as is well known, eminently successful; and we find in his whole history, even to its close, a display of the same spirit of intelligence and love of knowledge, and the same active, self-denying, and intrepid virtues, which so greatly distinguished its commencement. The publication of a pamphlet, soon after Meredith had left him, in recommendation of a paper currency, a subject then much debated in the province, obtained him such popularity, that he was employed by the government in printing the notes after it had been resolved to issue them. Other profitable business of the same kind succeeded. He then opened a stationer's shop, began gradually to pay off his debts, and soon after married. By this time his old rival, Keimer, had gone to ruin; and he was (with the exception of an old man, who was rich, and did not care about business) the only printer in the place. We now find him taking a leading part as a citizen. He established a circulating library, the first ever known in America, which, although it commenced with only fifty subscribers, became in course of time a large and valuable collection, the proprietors of which were eventually incorporated by royal charter. While yet in its infancy, however, it afforded its founder facilities of improvement of which he did not fail to avail himself, setting apart, as he tells us, an hour or two every day for study, which was the only amusement he allowed himself. In 1732 he first published, under the name of "Richard Saunders," his celebrated Almanack, commonly known by the name of Poor Richard's Almanack, which he continued annually for twenty-five years, and the proverbs and pithy sentences scattered up and down in the different numbers of which were afterwards thrown together into a connected dis-

course under the title of "The Way to Wealth," a production which has become so extensively popular that every one of our readers is probably familiar with it.

We will quote, in his own words, the account he gives of the manner in which he pursued one branch of his studies:—

"I had begun," says he, "in 1733, to study languages. I soon made myself so much a master of the French, as to be able to read the books in that language with ease. I then undertook the Italian. An acquaintance, who was also learning it, used often to tempt me to play chess with him. Finding this took up too much of the time I had to spare for study, I at length refused to play any more, unless on this condition, that the victor in every game should have a right to impose a task, either of parts of the grammar to be got by heart, or in translations, &c., which task the vanquished was to perform upon honour before our next meeting. As we played pretty equally, we thus beat one another into that language. I afterwards, with a little pains-taking, acquired as much of the Spanish as to read their books also. I have already mentioned that I had only one year's instruction in a Latin school, and that when very young, after which I neglected that language entirely. But when I had attained an acquaintance with the French, Italian, and Spanish, I was surprised to find, on looking over a Latin Testament, that I understood more of that language than I had imagined, which encouraged me to apply myself again to the study of it; and I met with the more success, as those preceding languages had greatly smoothed my way."

In 1736, he was chosen clerk of the General Assembly, and, being soon after appointed Deputy-postmaster for the State, he turned his thoughts to public affairs, beginning, however, as he says, with small matters. He first occupied himself in improving the city watch; then he suggested and promoted the establish-

ment of a fire-insurance company; afterwards he exerted himself in organizing a philosophical society, an academy for the education of youth, and a militia for the defence of the province. In short, every part of the civil government, as he tells us, and almost at the same time, imposed some duty upon him. "The Governor," he says, "put me into the commission of the peace; the corporation of the city chose me one of the common council, and soon after alderman; and the citizens at large elected me a burgess to represent them in the Assembly. This latter station was the more agreeable to me, as I grew at length tired with sitting there to hear the debates, in which, as clerk, I could take no part, and which were often so uninteresting that I was induced to amuse myself with making magic squares or circles, or anything to avoid weariness; and I conceived my becoming a member would enlarge my power of doing good. I would not, however, insinuate, that my ambition was not flattered by all these promotions,—it certainly was: for, considering my low beginning, they were great things to me; and they were still more pleasing as being so many spontaneous testimonies of the public good opinion, and by me entirely unsolicited."

CHAPTER XV.

FRANKLIN'S ELECTRICAL DISCOVERIES.

It is time, however, that we should introduce this extraordinary man in a new charecter. A much more important part in civil affairs than any he had yet acted was in reserve for him. He lived to attract to himself on the theatre of politics the eyes, not of his own countrymen only, but of the whole civilized world; and to be a principal agent in the production of events as mighty in themselves, and as pregnant with mighty consequences, as any belonging to modern history. But our immediate object is to exhibit a portrait of the diligent student, and of the acute and patient philosopher. We have now to speak of Franklin's famous electrical discoveries. Of these discoveries we cannot, of course, here attempt to give anything more than a very general account. But we shall endeavour to make our statement intelligible, so far as it goes, even to those of our readers to whom the subject may be new.

The term electricity is derived from *electron*, the Greek name for amber, which was known, even in ancient times, to be capable of acquiring, by being rubbed, the curious property of attracting very light bodies, such as small bits of paper, when brought near to them. This virtue was thought to be peculiar to the substance in question, and one or two others, down to the close of the sixteenth century, when our ingenious and philosophic countryman, William Gilbert, a physician of London, announced for the first time, in his Latin treatise on the magnet, that it belonged equally to the diamond and many other precious

stones; to glass, sulphur, sealing-wax, resin, and a variety of other substances. It is from this period that we are to date the birth of the science of Electricity, which, however, continued in its infancy for above a century, and could hardly, indeed, be said to consist of anything more than a collection of unsystematized and ill-understood facts, until it attracted the attention of Franklin.

Among the facts, however, that had been discovered in this interval, the following were the most important. In the first place, the list of the substances capable of being excited by friction to a manifestation of electric virtue had been considerably extended. It was also found that the bodies which had been attracted by the excited substance were immediately after as forcibly repelled by it, and could not be again attracted until they had touched a third body. Other phenomena, too, besides those of attraction and repulsion, were found to take place when the body excited was one of sufficient magnitude. If any other body, not capable of being excited, such as the human hand or a rod of metal, was presented to it, a slight sound would be produced, which, if the experiment was performed in a dark room, would be accompanied with a momentary light. Lastly, it was discovered that the electric virtue might be imparted to bodies not capable of being themselves excited, by making such a body, when insulated, that is to say, separated from all other bodies of the same class by the intervention of one capable of excitation, act either as the rubber of the excited body, or as the drawer of a succession of sparks from it, in the manner that has just been described. It was said, in either of these cases, to be *electrified;* and it was found that if it was touched, or even closely approached, when in this state, by any other body, in like manner incapable of being excited by friction, a pretty loud report would take place, accompanied, if either body were susceptible

of feeling, with a slight sensation of pain at the point of contact, and this would instantly restore the electrified body to its usual and natural condition.

In consequence of its thus appearing that all those bodies, and only those, which could not be themselves excited, might in this manner have electricity, as it were, transferred to them, they were designated *conductors*, as well as *non-electrics*: while all *electrics*, on the other hand, were also called *non-conductors*. It is proper, however, that the reader should be aware, that of the various substances in nature, none, strictly speaking, belong exclusively to either of these classes; the truth being merely, that different bodies admit the passage of the electric influence with extremely different degrees of facility, and that those which transmit it readily are called conductors,—the metals, and fluids, and living animals particularly belonging to this class; while such as resist its passage, or permit it only with extreme reluctance,—among which are amber, sulphur. wax, glass, and silk,—are described by the opposite denomination.

The beginning of the year 1746 is memorable in the annals of electricity for the accidental discovery of the possibility of accumulating large quantities of the electric fluid, by means of what was called the Leyden jar or phial. M. Cuneus, of that city, happened one day, while repeating some experiments which had been originally suggested by M. Von Kleist, Dean of the Cathedral in Camin,* to hold in one hand a glass vessel, nearly full of water, into which he had been sending a charge from an electrical machine, by means of a wire dipped into it, and communicating with the prime conductor, or insulated non-electric, exposed in the manner

* Sir John Leslie's account is, that "the experiment appears to have been originally performed in Pôland, but was repeated in November 1745 by Cuneus and Lallemand at Leyden, and described by Musschenbroeck."—*Dissertation*, in *Encycl. Britannica.*

we have already explained to the action of the excited cylinder. He was greatly surprised, upon applying his other hand to disengage the wire from the conductor, when he thought that the water had acquired as much electricity as the machine could give it, by receiving a sudden shock in his arms and breast, much more severe than anything of the kind he had previously encountered in the course of his experiments. The same thing, it was found, took place when the glass was covered, both within and without, with any other conductors than the water and the human hand, which had been used in this instance; as, for example, when it was coated on both sides with tin-foil, in such a manner, however, that the two coatings were completely separated from each other, by a space around the lip of the vessel being left uncovered. Whenever a communication was formed by the interposition of a conducting medium between the inside and outside coating, an instant and loud explosion took place, accompanied with a flash of light, and the sensation of a sharp blow, if the conductor employed was any part of the human body.

The first announcement of the wonders of the Leyden phial excited the curiosity of all Europe. The accounts given of the electric shock by those who first experienced it are quite ludicrous, and well illustrate how strangely the imagination is acted upon by surprise and terror, when novel or unexpected results suddenly come upon it. From these original accounts, as Dr. Priestley observes, could we not have repeated the experiment, we should have formed a very different idea of the electric shock from what it really is, even when given in greater strength than it could have been by those earlier experimenters. It was this experiment, however, that first made electricity a subject of general curiosity. Everybody was eager, notwithstanding the alarming reports that were spread of it, to feel the new sensation;

and in the same year in which the experiment was first made at Leyden, numbers of persons, in almost every country in Europe, obtained a livelihood by going about and showing it.

The particulars, then, that we have enumerated may be said to have constituted the whole of the science of Electricity, in the shape in which it first presented itself to the notice of Dr. Franklin. In the way in which we have stated them, they are little more, the reader will observe, than a mass of seemingly unconnected facts, having, at first sight, no semblance whatever of being the results of a common principle, or of being reducible to any general and comprehensive system. It is true that a theory, that of M. Dufay, had been formed before this time to account for many of them, and also for others that we have not mentioned; but it does not appear that Franklin ever heard of it until he had formed his own, which is, at all events, entirely different; so that it is unnecessary for us to take it at all into account. We shall form a fair estimate of the amount and merits of Franklin's discoveries by considering the facts we have mentioned as really constituting the science in the state in which he found it.

It was in the year 1746, as he tells us himself in the narrative of his life, that, being at Boston, he met with a Dr. Spence, who had lately arrived from Scotland, and who showed him some electrical experiments. They were imperfectly performed, as the doctor was not very expert; "but, being," says Franklin, "on a subject quite new to me, they equally surprised and pleased me. Soon after my return to Philadelphia, our Library Company received from Mr. Peter Collinson, F.R.S. of London, a present of a glass tube, with some account of the use of it in making such experiments. I eagerly seized the opportunity of repeating what I had seen at Boston; and, by much practice, acquired great readiness in performing those also which we had an account of

from England, adding a number of new ones. I say much practice, for my house was continually full for some time with persons who came to see these new wonders. To divide a little this incumbrance among my friends, I caused a number of similar tubes to be blown in our glass-house, with which they furnished themselves, so that we had at length several performers." The newly-discovered and extraordinary phenomena exhibited by the Leyden phial of course very early engaged his attention in pursuing these interesting experiments; and his inquisitive mind immediately set itself to work to find out the reason of such strange effects, which still astonished and perplexed the ablest philosophers of Europe. Out of his speculations arose the ingenious and beautiful theory of the action of the electric influence which is known by his name.

Dr. Franklin's earliest inquiries were directed to ascertain the *source* of the electricity which friction had the effect of at least rendering manifest in the glass cylinder, or other electric. The question was, whether this virtue was created by the friction in the electric, or only thereby communicated to it from other bodies. In order to determine this point, he resorted to the very simple experiment of endeavouring to electrify himself, that is to say, having insulated himself, and excited the cylinder by rubbing it with his hands, he then drew off its electricity from it in the usual manner into his own body. But he found that he was not thereby electrified at all, as he would have been by doing the same thing, had the friction been applied by another person. No spark could be obtained from him, after the operation, by the presentment of a conductor; nor did he produce on such bodies as were brought near him any of the other usual evidences of being charged with electricity.

If the electricity had been created in the electric by the friction, it was impossible to conceive why the person who drew it off should not have been electrified in

this case, just as he would have been had another person acted as the rubber. The result evidently indicated that the friction had effected a change upon the person who had performed that operation, as well as upon the cylinder, since it had rendered him incapable of being electrified by a process by which, in other circumstances, he would have been so. It was plain, in short, that the electricity had passed, in the first instance, out of his body into the cylinder; which, therefore, in communicating it to him in the second instance, only gave him back what it had received, and, instead of electrifying him, merely restored him to his usual state—to that in which he had been before the experiment was begun.

This accordingly was the conclusion to which Franklin came: to confirm it, he next insulated two individuals, one of whom he made to rub the cylinder, while the other drew the electricity from it. In this case, it was not the latter merely that was affected; both were electrified. The one had given out as much electricity to the cylinder in rubbing it, as the other had drawn from it. To prove this still farther, he made them touch one another, when both were instantly restored to their usual state, the redundant electricity thrown off by the one exactly making up the deficiency in the other. The spark produced by their contact was also, as was to have been expected, greater than that which took place when either of them was touched by any third person who had not been electrified.

Proceeding upon the inferences which these results seemed so evidently to indicate, Franklin constructed the general outlines of his theory. Every body in nature he considered to have its natural quantity of electricity, which may, however, be either diminished by part of it being given out to another body, as that of the rubber, in the operation of the electrical machine, is given out to the cylinder; or increased, as when the body is made to receive the electricity from the cylinder. In the one

case he regarded the body as *negatively*, in the other as *positively*, electrified. In the one case it had less, in the other more, than its natural quantity of electricity; in either, therefore, supposing it to be composed of electricity and common matter, the usual equilibrium or balance between its two constituent ingredients was, for the time, upset or destroyed.

But how should this produce the different effects which are observed to result from the action of electrified bodies? How is the mere circumstance of the overthrow of the customary equilibrium between the electricity and the matter of a body to be made to account for its attraction and repulsion of other bodies, and for the extraordinary phenomena presented by the Leyden phial? The Franklinian theory answers these questions with great ease and completeness.

The fundamental law of the electric fluid, according to this theory, is, that its particles attract matter, and repel one another. To this we must add a similar law with regard to the particles of matter, namely, that they repel each other, as well as attract electricity. This latter consideration was somewhat unaccountably overlooked by Franklin; but was afterwards introduced by Æpinus, of Petersburg, and our celebrated countryman, r. Cavendish, in their more elaborate expositions of his theory of the electrical action. Let us now apply these two simple principles to the explanation of the facts we have already mentioned.

In the first place, when two bodies are in their ordinary or natural state, the quantity of matter is an exact balance for the quantity of electricity in each, and there is accordingly no tendency of the fluid to escape; no spark will take place between two such bodies when the are brought into contact. Nor will they either attract or repel each other, because the attractive and re ulsive forces operating between them are exactly balanced, the two attractions, of the electricity in the

first for the matter in the second, and of the electricity in the second for the matter in the first, being opposed by the two repulsions of the electricity in the first for the electricity in the second, and of the matter in the first for the matter in the second. They, therefore, produce no effect upon each other whatever.

But let us next suppose that one of the bodies is an electric which has been excited in the usual way by friction, a stick of wax, or a glass cylinder, for example, which has been rubbed with the hand, or a piece of dry silk. In this case, the body in question has received an addition to its natural quantity of electricity, which addition, accordingly, it will most readily part with whenever it is brought into contact with a conductor. But this is not all. Let us see how it will act, according to the law that has been stated, upon the other body, which we shall suppose to be in its natural state when they are brought near each other. First, from the repulsive tendency of the electric particles, the extra electricity in the excited body will drive away a portion of the electricity of the other from its nearest end, which will thus become negatively electrified, or will consist of more matter than is necessary to balance its electricity. In this state of things, what are the attractive and repulsive forces operating between the two bodies, the one, be it remembered, having an excess of electricity, and the other an excess of matter? There are, in fact, five attractive forces opposed by only four repulsive; the former being those of the matter in the first body for the electricity in the second, of the balanced electricity in the first for the balanced matter in the second, of the same for the extra matter in the second, together with the two of the extra electricity in the first for the same two quantities of matter; and the latter being those of the matter in the first for the balanced matter in the second, of the same for the extra matter in the second, together with those of the electricity in the

second both for the balanced and the extra electricity in the first. The two bodies, therefore, ought to meet, as we find they actually do. But no sooner do they meet than the extra electricity of the first, attracted by the matter of the second, flows over partly to it: and both bodies become positively electrified; that is to say, each contains a quantity of electricity beyond that which its matter is capable of balancing. It will be found, upon examination, that we have now four powers of attraction opposed by five of repulsion; the former being those of the matter in each body for the two electricities in the other, the latter those exerted by each of the electricities in the one against both the electricties of the other, together with that of the matter in the one for the matter in the other. The bodies now accordingly should repel each other, just as we find to be the fact. Of course the same reasoning applies to the case of a neutral body and any other containing a superabundance of electricity, whether it be an electric or no, and in whatever way its electricity may have been communicated to it. We may add that there is no case of attraction or repulsion between two bodies in which the results indicated by the theory do not coincide with those of observation as exactly as in this.

We now come to the phenomena of the Leyden phial. The two bodies upon which we are here to fix our attention are the interior and exterior coatings, which, before the process of charging has commenced, are of course in their natural state, each having exactly that quantity of electricity which its matter is able to balance, and neither therefore exerting any effect whatever upon the other. But no sooner has the interior coating received an additional portion of electricity from the prime conductor, with which the reader will remember it is in communication, than, being now positively electrified, it repels a corresponding portion of its electricity from the exterior coating, which therefore becomes negatively electrified.

As the operation goes on, both these effects increase, till at last the superabundance of electricity in the one surface, and its deficiency in the other, reach the limit to which it is wished to carry them. All this while, it will be remarked, the former is prevented from giving out its superfluity to the latter by the interposition of the glass, which is a non-conductor, and the uncovered space which had been left on both sides around the lip of the vessel. If the charge were made too high, however, even these obstacles would be overcome, and the unbalanced electricity of the interior coating, finding no easier vent, would at last rush through the glass to the unsaturated matter on its opposite surface, probably shattering it to pieces in its progress. But, to effect a discharge in the usual manner, a communication must be established by means of a good conductor between the two surfaces, before this extreme limit be reached. If either a rod of metal, for example, or the human body, be employed for this purpose, the fluid from the interior coating will instantly rush along the road made for it, occasioning a pretty loud report, and, in the latter case, a severe shock, by the rapidity of its passage. Both coatings will, in consequence, be immediately restored to their natural state.

That this is the true explanation of the matter, Franklin further demonstrated by a variety of ingenious experiments. In the first place, he found that, if the outer coating was cut off, by being insulated from every conducting body, the inner coating could not be charged; the electricity in the outer coating had here no means of escape, and it was consequently impossible to produce in that coating the requisite negative electricity. On the other hand, if a good conductor was brought within the striking distance from the outside coating, while the process of charging was going on, the expelled fluid might be seen passing away towards it in sparks, in proportion as more was sent from the prime conductor

into the inside of the vessel. He observed also that, when a phial was charged, a cork ball, suspended on silk, would be attracted by the one coating when it had been repelled by the other—an additional indication and proof of their opposite states of electricity, as might be easily shown by an analysis of the attractive and repulsive forces operating between the two bodies in each case.

But Franklin did not rest contented with ascertaining the principle of the Leyden phial. He made also a very happy application of this principle, which afforded a still more wonderful manifestation than had yet been obtained of the powers of accumulated electricity. Considering the waste that took place, in the common experiment, of the fluid expelled, during the process of charging, from the exterior coating, he conceived the idea of employing it to charge the inner surface of a second jar, which he effected, of course, by the simple expedient of drawing it off by means of a metal rod communicating with that surface. The electricity expelled from the outside of this second jar was conveyed, in like manner, into the inside of a third: and, in this way, a great number of jars were charged with the same facility as a single one. Then, having connected all the inside coatings with one conductor, and all the outside coatings with another, he had merely to bring these two general conductors into contact or communication, in order to discharge the whole accumulation at once. This contrivance he called an *Electrical Battery.*

The general sketch we have just given will put the reader in position, at least, of the great outlines of the Franklinian theory of electricity, undoubtedly one of the most beautiful generalizations to be found in the whole compass of science. By the aid of what we may call a single principle, since the law with regard to the electric fluid and common matter is exactly the same, it explains satisfactorily not only all the facts connected

with this interesting subject which were known when it was first proposed, but all those that have been since discovered, diffusing order and light throughout what seemed before little better than a chaos of unintelligible contradictions. We must now, however, turn to a very brilliant discovery of this illustrious philosopher, the reality of which does not depend upon the truth or falsehood of any theory.

Franklin was by no means the first person to whom the idea had suggested itself of a similarity between electricity and lightning. Not to mention many other names which might be quoted, the Abbé Nollet had, before him, not only intimated his suspicion that thunder might be in the hands of Nature what electricity is in ours, but stated a variety of reasons on which he rested his conjecture. It is to Franklin alone, however, that the glory belongs of both pointing out the true method of verifying this conjecture, and of actually establishing the perfect identity of the two powers in question. "It has, indeed, been of late the fashion," says the editor of the first account of his electrical experiments, published at London in 1751, "to ascribe every grand or unusual operation of nature, such as lightning and earthquakes, to electricity; not, as one would imagine from the manner of reasoning on these occasions, that the authors of these schemes have discovered any connexion betwixt the cause and effect, or saw in what manner they were related; but, as it would seem, merely because they were unacquainted with any other agent, of which it could not positively be said the connexion was impossible." Franklin transformed what had been little more than a figure of rhetoric into a most important scientific fact.

In a paper, dated November 7, 1749, he enumerates all the known points of resemblance between lightning and electricity. In the first place, he remarks, it is no wonder that the effects of the one should be so much

greater than those of the other; for if two gun-barrels electrified will strike at two inches distance, and make a loud report, at how great a distance will ten thousand acres of electrified cloud strike, and give its fire; and how loud must be that crack! He then notices the crooked and waving course both of the lightning, and, in some cases, of the electric sparks; the tendency of lightning, like electricity, to take the readiest and best conductor; the facts that lightning, as well as electricity, dissolves metals, burns some bodies, rends others, strikes people blind, destroys animal life, reverses the poles of magnets, &c.

He had known for some time the extraordinary power of pointed bodies, both in drawing and in throwing off the electric fire. The true explanation of this fact did not occur to him; but it is a direct consequence of the fundamental principle of his own theory, according to which the repulsive tendency of the particles of electricity towards each other, occasioning the fluid to retire, in every case, from the interior to the surface of bodies, drives it with especial force towards points and other prominences, and thus favours its escape through such outlets; while, on the other hand, the more concentrated attraction which the matter of a pointed body, as compared with that of a blunt one, exerts upon the electricity to which it is presented, brings it down into its new channel in a denser stream. In possession, however, of the fact, we find him concluding the paper we have mentioned as follows:—"The electric fluid is attracted by points. We do not know whether this property be in lightning; but, since they agree in all the particulars in which we can already compare them, it is not improbable that they agree likewise in this. Let the experiment be made."

Full of this idea, it was yet some time before he found what he conceived a favourable opportunity of trying its truth in the way he meditated. A spire was about

to be erected in Philadelphia, which he thought would afford him facilities for the experiment; but, his attention having been one day drawn by a kite which a boy was flying, it suddenly occurred to him, that here was a method of reaching the clouds preferable to any other. Accordingly, he immediately took a large silk handkerchief, and stretching it over two cross sticks, formed in this manner his simple apparatus for drawing down the lightning from its cloud. Soon after, seeing a thunderstorm approaching, he took a walk into a field in the neighbourhood of the city, in which there was a shed, communicating his intentions, however, to no one but his son, whom he took with him, to assist him in raising the kite. This was on Thursday the 15th of June, 1752.

The kite being raised, he fastened a key to the lower extremity of the hempen string, and then, insulating it by attaching it to a post by a cord of silk, he placed himself under the shed, and waited the result. For some time no signs of electricity appeared. A cloud, apparently charged with lightning, had even passed over them without producing any effect. At length, however, just as Franklin was beginning to despair, he observed some loose threads of the hempen string rise and stand erect, exactly as if they had been repelled from each other by being charged with electricity. He immediately presented his knuckle to the key, and, to his inexpressible delight, drew from it the well-known electrical spark. It is said that his emotion was so great at this completion of a discovery which was to make his name immortal, that he heaved a deep sigh, and felt that he could that moment have willingly died. As the rain increased, the cord became a better conductor, and the key gave out its electricity copiously. Had the hemp been thoroughly wet, the bold experimenter might, as he was contented to do, have paid for his discovery with his life.

He afterwards brought down the lightning into his

house by means of an insulated iron rod, and performed with it, at his leisure, all the experiments that could be performed with electricity. But he did not stop here. His active and practical mind was not satisfied even with the splendid discovery he had made, until he had turned it to a useful end. It suggested to him, as is well known, the idea of a method of preserving buildings from lightning, which is extremely simple and cheap, as well as effectual; consisting, as it does, in nothing more than attaching to the building a pointed metallic rod, rising higher than any part of it, and communicating at the lower end with the ground. This rod the lightning is sure to seize upon in preference to any part of the building; by which means it is conducted to the earth, and prevented from doing any injury. There was always a strong tendency in Franklin's philosophy to these practical applications. The lightning-rod was probably the result of some of the amusing experiments with which Franklin was, at the commencement of his electrical investigations, accustomed to employ his own leisure, and afford pleasure to his friends. In one of his letters to Mr. Collinson, dated so early as 1748, we find him expressing himself in the following strain, in reference to his electrical experiments:—"Chagrined a little that we have hitherto been able to produce nothing in this way of use to mankind, and the hot weather coming on, when electrical experiments are not so agreeable, it is proposed to put an end to them for this season, somewhat humorously, in a party of pleasure on the banks of *Skuylkill*. Spirits at the same time are to be fired by a spark sent from side to side through the river, without any other conductor than the water—an experiment which we have some time since performed to the amazement of many. A turkey is to be killed for dinner by the *electrical shock*, and roasted by the *electrical jack*, before a fire kindled by the *electrical bottle*; when the healths of all the famous

electricians in *England*, *Holland*, *France*, and *Germany* are to be drunk in *electrified bumpers*, under the discharge of guns from the *electrified battery*."*

Franklin's electrical discoveries did not, on their first announcement, attract much attention in England; and, indeed, he had the mortification of learning that his paper on the similarity of lightning to electricity, when read by a friend to the Royal Society, had been only laughed at by that learned body. In France, however, the account that had been published in London of his experiments, fortunately fell into the hands of the celebrated naturalist, Buffon, who was so much struck with it, that he had it translated into French, and printed at Paris. This made it immediately known to all Europe; and versions of it in various other modern languages soon appeared, as well as one in Latin. The theory propounded in it was at first violently opposed in France by the Abbé Nollet, who had one of his own to support, and, as Franklin tells us, could not at first believe that such a work came from America; but said it must have been fabricated by his enemies at Paris. The Abbé was eventually, however, deserted by all his partisans, and lived to see himself the last of his sect. In England, too, the Franklinian experiments gradually began to be more spoken of; and, at last, even the Royal Society was induced to resume the consideration of the Papers that had formerly been read to them. One of their members verified the grand experiment of bringing down lightning from the clouds; and upon his reading

* The *Skuylkill*, it is remarked in the original account, is "the river that washes one side of Philadelphia, as the Delaware does the other; both are ornamented with summer habitations of the citizens, and the agreeable mansions of the principal people of this colony." An electrical bumper, we are farther informed, was a small tumbler of thin glass, nearly filled with wine, and electrified, which, when brought to the lips, gave a shock, if the person drinking was close shaved and did not breathe on the liquor.

to them an account of his success, "they soon," says Franklin, "made me more than amends for the slight with which they had before treated me. Without my having made any application for that honour, they chose me a member; and voted that I should be excused the customary payments, which would have amounted to twenty-five guineas; and ever since have given me their Transactions gratis. They also presented me with the gold medal of Sir Godfrey Copley, for the year 1753, the delivery of which was accompanied with a very handsome speech of the President, Lord Macclesfield, wherein I was highly honoured." Some years afterwards, when he was in this country with his son, the University of St. Andrew's conferred upon him the degree of Doctor of Laws; and the example was followed by the Universities of Edinburgh and Oxford. He was also elected a member of many of the learned societies throughout Europe.

No philosopher of the age now stood on a prouder eminence than this extraordinary man, who had originally been one of the most obscure of the people, and had raised himself to all this distinction almost without the aid of any education but such as he had given himself. Who will say, after reading his story, that anything more is necessary for the attainment of knowledge than the determination to attain it?—that there is any other obstacle to even the highest degree of intellectual advancement which may not be overcome, except a man's own listlessness or indolence? The secret of this man's success in the cultivation of his mental powers was, that he was ever awake and active in that business; that he suffered no opportunity of forwarding it to escape him unimproved; that, however poor, he found at least a few pence, were it even by diminishing his scanty meals, to pay for the loan of the books he could not buy; that, however hard-wrought, he found a few hours in the week, were it by sitting up

half the night after toiling all the day, to read and study them. Others may not have his original powers of mind; but his industry, his perseverance, his self-command, are for the imitation of all; and, though few may look forward to the rare fortune of achieving discoveries like his, all may derive both instruction and encouragement from his example. They who may never overtake the light may at least follow its path, and guide their footsteps by its illumination.

Were we to pursue the remainder of Franklin's history, we should find the fame of the patriot vying with that of the philosopher in casting a splendour over it; and the originally poor and unknown tradesman standing before kings, associating as an equal with the most eminent statesmen of his time, and arranging along with them the wars and treaties of mighty nations. When the struggle of American Independence commenced, he was sent as ambassador from the United States to the Court of France, where he soon brought about an alliance between the two countries, which produced an immediate war between the latter and England. In 1783, he signed, on the part of the United States, the treaty of peace with England, which recognised their Independence. Two years after he returned to his native country, where he was received with acclamation by his grateful and admiring fellow-citizens, and immediately elected President of the Supreme Executive Council. He closed his eventful and honourable life on the 17th of April, 1790, in the eighty-fifth year of his age.

CHAPTER XVI.

DEVOTION TO KNOWLEDGE IN EXTREME POVERTY:—ERASMUS; KEPLER; SCHAEFFER; BULLINGER; MUSCULUS; POSTELLUS; CASTALIO; ADRIAN VI.; PERRIER; CLAUDE LORRAINE; SALVATOR ROSA; MARMONTEL; HOCHE; LAGRANGE; DR. JOHNSON; DR. PARR; SPAGNOLETTO; LE JAY; CASTELL; DAVIES; TYTLER; WILLIAM DAVY.—IN EXILE AND IMPRISONMENT:—OVID; BOETHIUS; BUCHANAN; TASSO; SMART; MAGGI; LE MAISTRE; LORENZINI; PRYNNE; MADAME ROLAND; RALEIGH; LADY JANE GREY; JAMES I. (OF SCOTLAND); LOVELACE.

In attempting to illustrate such a subject as the triumphs of the Love of Knowledge, and to set forth the exceeding might of that passion, the delight with which the indulgence of it is fraught, and the obstacles of all sorts in the way of its gratification which it has so often overcome, the materials which present themselves are so abundant and so various, that the chief difficulty in using them is which to choose. The examples we have already cited may be considered sufficient to show how perfectly practicable it is to unite the pursuit of literature with that of any description of business or professional occupation. We shall now proceed to notice some aspirants after knowledge, who have had other difficulties to struggle with than those arising from either the seducing excitements or engrossing cares and toils of active life.

Anecdotes illustrating the devotion with which knowledge has been pursued under the pressure of severe penury, or other forms of worldly misfortune, are evidences, not of any calamities to which literature has a peculiar tendency to expose its votaries, but rather of the power with which it arms them to conquer and rise

superior to calamities. Students, and authors, and men of genius have their share of adversity with others; but few others enjoy their peculiar advantages, if not for warding it off, at least for bearing up against it. The man who is most to be pitied under misfortune is he whose whole happiness or misery hangs on outward circumstances. The scholar has sources of enjoyment within himself of which no severity of fortune can altogether deprive him. Hence, a man who is truly in love with philosophy will often make light of sufferings and privations which to another would be almost intolerable: if his body be in want, his mind has store of riches. When ERASMUS was a poor student at Paris, he was indeed very anxious to be a little richer; but, almost in rags as he was, it was not fine or even comfortable raiment after which he principally longed. "As soon as I get money," says he, in a letter to a friend, "I will buy, first Greek books, and then clothes." "It is the mind," says Shakspeare, "that makes the body rich;" and so the young scholar felt. Of his two contemplated purchases, it was not the clothes, he knew, but the Greek books, that were to bring him anything permanent, in the way either of enjoyment or of distinction.

And similar to those of Erasmus have been the feelings of many another aspirant after intellectual eminence, when struggling, like him, with the inconveniences of indigence, or braving every variety of labour and privation in pursuit of the object on which his heart was set. The illustrious KEPLER spent his life in poverty; yet, amidst all his difficulties, he used to declare that he would rather be the author of the works he had written than possess the duchy of Saxony. There is hardly any severity of endurance to which ardent spirits have not subjected themselves, under the inspiration of an attachment to literature or the arts. The German naturalist, SCHAEFFER, was so poor when he entered the University

of Halle, that for the first six months of his attendance his whole expenditure did not exceed a few halfpence a-day: a little bread and a few vegetables boiled in water were his only food; and, although the winter was a very rigorous one, no fire ever warmed his chimney. Yet all this he bore cheerfully, counting the opportunity he enjoyed of pursuing his studies as more than a compensation for it all. This heroism, indeed, has never been uncommon among German scholars. We have already mentioned the cases of Heyne and Winckelman. The latter, according to a practice not unusual among poor students in that country, was wont, while attending the grammar-school, to support himself chiefly by singing at night through the streets; and not himself only, but in a great measure his father also. But Winckelman's expenses were always on the very humblest scale. Even when his fondest wishes were at last crowned by an opportunity having been afforded him of visiting Rome, he considered himself in possession of an ample revenue in the pension of a hundred crowns, which he was allowed, by his patron Father Rauch, in addition to his board, which he had free. The learned theologian, HENRY BULLINGER, one of the distinguished names of the Reformation, had also supported himself at school for several years by his talents as a street-musician. His contemporary and fellow-labourer in the same cause, WOLFGANG MUSCULUS, had commenced his career as a scholar in a similar manner, having for some time sung ballads through the country, and begged his way from door to door, in order to obtain a pittance wherewith to put himself to school; till he was at length charitably received into a convent of Benedictine monks, who, greatly to his delight, offered to educate him, and admit him of their order. Musculus was afterwards, on embracing the tenets of the Lutherans, reduced to such distress, that he was obliged to send his wife to service, and to bind himself apprentice to a weaver of Strasburg,

who no sooner discovered his heretical opinions than he turned him out of doors. He had then no other resource but to offer himself as a common labourer to assist in repairing the fortifications of the city. Yet even in this condition he employed every moment he could spare in study; and applied himself, in particular, with so much ardour to the Hebrew language, that he placed himself eventually almost at the head of the scholars by whom that branch of learning was cultivated in his time.

Another great Orientalist of that age, and in many respects one of the most extraordinary characters of any age, WILLIAM POSTELLUS, was, when a mere boy, so fond of reading, that he would often, it is related, while engaged with his book, forget to take his meals. Having set out from his native village in Normandy for Paris, in the expectation of finding means to pursue his studies in that capital, he was attacked, in the course of his journey, by robbers, who took from him all the little he had in the world, and used him besides so barbarously, that he was obliged to take refuge in an hospital, where he lay for two years before his health was restored. On his recovery, he bent his steps once more towards Paris; being at the time, however, in such a state of destitution, that he had no way of obtaining wherewithal to buy himself a coat, except by offering his services as a reaper to assist in cutting down the crop which then happened to be ready for the sickle. Having arrived at Paris, he thought himself fortunate in being received as a domestic into the College of St. Barbe, not doubting that even this situation would afford him, in some degree, those opportunities of improvement which he so ardently longed for. Accordingly, having contrived to get possession of a Greek and a Hebrew grammar, he soon made himself master of both these languages, solely by his own efforts; and, although the fragments of time he could steal from the duties of his humble place were all the leisure he had for study, he afterwards became one

of the greatest scholars of his time, being distinguished especially for his knowledge both of ancient and modern languages, of which there was scarcely one that he was not familiar with. To his vast acquirements, however, he added, in the latter part of his life, no little extravagance both of opinion and conduct: and, indeed, some of his notions could have proceeded from nothing else than partial derangement. But it does not belong to our present purpose to pursue this part of his history. Some of his works exhibit an extraordinary mixture of learning and genius, with the most singular delusion and absurdity.

Sebastian Castalio, whose elegant Latin version of the Scriptures we have mentioned in a former chapter, was for many years of his life so poor, that, having a wife and family to support, he was obliged to employ the whole day in labouring in the fields, and could give only the earlier part of the morning to study. Yet, even in these circumstances, literature was the great consolation of his life. Calvin, with whom he had quarrelled, having, in the heat of controversy, allowed himself directly to charge him with theft, because he was in the habit of occasionally bringing home with him a little wood to serve for fuel, was answered by Castalio in a mild but dignified remonstrance, in which he admits that, as he dwelt on the banks of the Rhine, he had indeed been sometimes accustomed to employ himself, at leisure hours, in catching with a hook the floating wood which it carries down in its inundations, in order to warm his family,—the wood being in fact, he remarks, public property, and belonging to the first taker. And this he did, he says, being at the time wholly occupied with his translation of the Scriptures, and resolved rather to beg than to quit it. Such a love for literature as this would have almost made beggary honourable.

Pope Adrian VI. was the son of a poor barge-builder

of Utrecht, who, desirous of procuring for his son a good education, and yet unable to pay for it, found means at last to get him admitted among the boys educated gratuitously at the university of Louvain. While attending this seminary, however, the pecuniary resources of the young scholar were so extremely scanty, that he was unable to afford himself candles whereby to study at night. But he did not on that account spend his time in idleness. He used to take his station, we are told, with his book in his hand, in the church porches, or at the corners of the streets, where lamps were generally kept burning, and to read by their light. After passing through a succession of ecclesiastical preferments, which he owed to his eminent acquirements and unimpeachable character, Adrian was appointed preceptor to the young Archduke Charles, grandson to Ferdinand, King of Spain, who afterwards became so powerful and celebrated as the Emperor Charles V. To this connection he was indebted for his elevation to the papal throne, which he ascended in the sixty-second year of his age, and occupied for two years, having died in 1523. The short time he held this lofty station was not, however, the happiest period of Adrian's life, as the following inscription which he desired to be placed over his tomb may testify:—"Here lies Adrian VI., who esteemed no misfortune which happened to him in life so great as his being called to govern." A striking lesson to that ambition whose aim is only high place and domination, as if man were ever to find true satisfaction in that which is not within himself, but has both its support and its object, its beginning and its end, in the changing and perishing things around him. Thus, too, felt the contemporary of Adrian, the great Cardinal Ximenes, when, after having arrived at the dignities of Archbishop of Toledo, Regent of Spain, and one of the Princes of the Church, he used to sigh for the groves of his beloved Castagnar (the religious establishment embosomed among

the chestnuts), where, when only a simple monk, he had lived on the humblest fare, in a hut constructed by his own hands; forgetting the world, and desiring nothing so much as to be forgotten by it.

We have already had occasion to quote several examples of the enthusiasm with which cultivators of the fine arts have devoted themselves to the acquisition of that knowledge and skill to which they afterwards owed their eminence and fame. The dream of every young artist's ambition is Rome. The French painter, FRANCIS PERRIER, when a young man, living in poverty and obscurity at Lyons, was haunted by so eager a desire of visiting "the eternal city," that he gladly consented to act as guide to a blind person who was travelling thither. on condition that the latter should pay the expenses of both; and in this way, after a journey of above four hundred miles on foot, he arrived among those monuments of ancient and modern genius, which, ere he had yet seen them, he had so long and fondly worshipped in fancy. The first engagement he obtained was a humble and laborious one—to make copies for a dealer in paintings from originals of merit; but he profited by the advantage it afforded him of studying the works of several distinguished masters. Perrier afterwards established himself in Paris, and obtained a high reputation among the artists of his day. He died in that city in 1660.

CLAUDE LORRAINE is said to have been originally apprenticed to a pastry-cook, and to have been, on his first appearance in Rome, so destitute of resources, that he was obliged to accept of the meanest employment connected with the art he was desirous of studying, and in which he afterwards attained so rare an eminence. SALVATOR ROSA, who was born in 1615, a few years later than Claude, had made himself already an able painter, principally by the study of nature, while still residing in his native village in the neighbourhood of Naples, and before he had ever been able to gratify his earnest

desire of visiting Rome. Salvator's genius, indeed, was nursed in hardships and sorrows, which yet had only the effect of strengthening and exalting it. When very young, he had been left, by the death of his father, the sole support of his mother and sisters; and so heavily did this burthen press upon him, that, although he wrought hard, he was sometimes, it has been said, after finishing a picture, scarcely able to save enough from the scanty price he received for it, to purchase the canvas for another. He was in his twentieth year, when a friend and brother artist, somewhat richer than himself, proposed to take him to Rome with him, and to pay the expenses of both; an offer which Salvator gladly accepted. When he found himself at last in that celebrated capital, his ardour would scarcely suffer him to take sustenance or repose, while he examined, with the enthusiasm of a painter and a poet, the precious remains of ancient art by which he was surrounded; and the incessant fatigue to which he exposed himself at last brought on an attack of fever, which rendered it necessary for him to be carried back to Naples. It was some years before it was again in his power to visit Rome; but it continued to fill his visions of the future, and to make his residence at Naples seem an exile. At length, however, his eye rested once more on the objects among which his heart had so long been. Rome was at this time crowded with painters, whose names have now become the household words of fame, and several of whom were even already regarded with an admiration as great as is ever bestowed on living genius. But, undismayed by their glory, Salvator aspired from the first to be, not the imitator of any of them, but their competitor and rival,—to form a style, and found a school, of his own. We need not say how greatly he succeeded in this object, since his name, too, is now familiar to every ear, as one of the most distinguished in the second generation of the great painters of Italy.

The celebrated MARMONTEL was born of parents who belonged to the humblest rank of the people, and was indebted for the elements of education to the charity of a priest. The able and accomplished French general HOCHE, who so greatly distinguished himself in the early wars of the Revolution, was originally a stable-boy. While in that situation, and after having enlisted in the army, which he did at the age of sixteen, he used to work at any employment he could find during the day, to get money to buy books, which he would often spend the greater part of the night in reading. And Hoche continued to be all his life fond of study. When he was arrested and thrown into prison under the suspicious despotism of Robespierre, with the prospect of being at any moment dragged off to the guillotine, from which he was only saved by the death of the tyrant, he found in his books what often made him forget the horrors of his situation, and more than compensated him, as he afterwards felt, for all that he had suffered. LAGRANGE, the French translator of Lucretius, was so poor while attending the university, that his only food for the day was a little bread, which he carried with him from home in the morning, and used to eat in an alley, or the vestibule of a church, during the intervals between the different classes. Dr. JOHNSON was indebted for his maintenance at college to the scanty aid of a wealthy individual, who professed to keep him there as a companion to his son. The learned Dr. PARR, after having, at the early age of fourteen, distinguished himself above all his schoolfellows at Harrow, was taken from school by his father, who wished to initiate him in his own business of a surgeon and apothecary. Young Parr, however, continued still to pursue his studies with as much benefit as before, by getting one or other of his old companions to report to him the master's remarks on the lesson of every day as it was read; until his father, finding the contest with nature likely in this case to

turn out a vain one, at last consented that he should proceed to the university. He had been but a short



DR. JOHNSON.

time, however, at Cambridge, when his father died; and that event, leaving him almost literally penniless, compelled him with a heavy heart to bid farewell also to this new theatre of his ambition. Yet these cruel disappointments, and a long succession of other struggles with indigence and misfortune, by which they were followed, did not prevent Parr from attaining eventually the distinction he merited, and becoming one of the greatest scholars of his time. Such early difficulties form often, indeed, the very influences to which no small portion of the future eminence of their victims is to be attributed. The illustrious French mathematician Lagrange used to say, that he certainly never should have been the mathematician he had turned out, if he

had been born to a fortune, instead of having had to make his own way to one.

It is related of the painter, Joseph Ribera, commonly called Lo Spagnoletto (the little Spaniard), that, after having for some time pursued his art at Rome in great indigence, he was patronised by one of the cardinals, who, giving him apartments in his palace, enabled him to live at his ease; but that, after a while, finding himself growing indolent amidst his new comforts and luxuries, he actually withdrew himself from their corrupting influence, and voluntarily returned to poverty and labour—thus exhibiting the choice of Hercules in real life, and verifying the beautiful fiction of Prodicus.

It has been the same with the devotees of literature, many of whom have pursued the objects upon which their hearts were set with a resolution which no difficulties seem to have had any effect in alarming or impairing. The French Polyglot Bible of 1645, in ten volumes folio, was the undertaking of an advocate of Paris, Guy Michael le Jay, who, having spent his fortune on its completion, declined the overtures of Cardinal Richelieu to repay part of the expenditure on condition of the work being allowed to come forth in his name, preferring to submit to poverty rather than to share with any one the glory of so great an enterprise. So our own countryman, the most learned Dr. Edmund Castell, expended his whole fortune, amounting to twelve thousand pounds, on his 'Lexicon Heptaglotton,' which appeared in 1669, as a companion to Bishop Walton's Polyglot Bible; and he, besides, lost his sight in preparing the work, to which he is said to have devoted eighteen hours a day for seventeen years. Miles Davis, a writer on antiquities in the earlier part of last century, some of whose works show considerable learning, is said to have hawked his productions himself from door to door. A work, entitled 'Essays on the most important Subjects of Natural and Revealed Reli-

gion,' which appeared at Edinburgh in 1772, was both composed and printed by the late Mr. JAMES TYTLER, while he resided in the sanctuary of Holyrood House, without ever having been written, the sentences being merely formed in the first instance in the mind of the author, and then directly put in types. This reminds us of what Franklin tells us of Keimer, the first master with whom he served at Philadelphia, whom he found, on being introduced to him, employed in printing an Elegy on a young poet of the place, who had recently died. "Keimer," says he, "made verses, too, but very indifferently. He could not be said to *write* them, for his method was to compose them in the types directly out of his head: there being no copy, but one pair of cases, and the elegy probably requiring all the letter, no one could help him."

But perhaps the most extraordinary instance of literary industry and perseverance on record is afforded us in the history of a work entitled 'A System of Divinity,' by the Reverend WILLIAM DAVY, A.B., a clergyman of the Church of England. Mr. Davy was born in 1743, near Chudleigh in Devonshire, where his father resided on a small farm, his own freehold. From a very early age he gave proofs of a mechanical genius, and when only eight years old, he cut out with a knife and put together the parts of a small mill, after the model of one that was then building in the neighbourhood, the progress made in constructing which he used to observe narrowly every day, while he proceeded with equal regularity in the completion of his own little work. When the large mill was finished, it was found not to work exactly as it ought to have done, and the defect at first eluded the detection even of the builder. It is said that while they were endeavouring to ascertain what was wrong, the young self-taught architect presented himself, and, observing that his mill went perfectly well, pointed out, after an exami-

nation of a few minutes, both the defect and the remedy.

Being intended for the Church, he was placed at the Exeter Grammar School: and here he distinguished himself by his proficiency in classical learning, while he still retained his early attachment to mechanical pursuits, and exercised his talents in the construction of several curious and ingenious articles. At the age of eighteen he entered at Oxford, where he took the degree of B.A. at the usual time. It was during his residence at the University that he conceived the idea of compiling a system of divinity, to consist of selections from the best writers, and began to collect, in a commonplace-book, such passages as he thought would suit his purpose.

On leaving college, he was ordained to the curacy of Moreton, in the diocese of Exeter, and not long after he removed to the adjoining curacy at Lustleigh, with a salary of 40*l.* a-year. In the year 1786 he published, by subscription, six volumes of sermons, by way of introduction to his intended work; but this proved an unfortunate speculation, many of the subscribers forgetting to pay for their copies, and he remained in consequence indebted to his printer above a hundred pounds. This disaster, however, did not discourage him: he pursued his labours of reading and compilation, and completed the work. But when his voluminous manuscript was finished he found that it would cost not less than two thousand pounds to get it printed. In these circumstances, he again thought of publication by subscription, and issued his proposals accordingly; but the names he collected were too few to induce any bookseller to risk the expense of an impression of the work. Determined not to be defrauded of the honours of authorship, Mr. Davy now resolved to become a printer himself. So, having constructed his own press, and purchased from a printer, at Exeter, a quantity of

worn and cast-off types, he commenced operations, having no one to assist him except his female servant, and having of course to perform alternately the offices of compositor and pressman. Yet in this manner did the ingenious and persevering man, sustained by the anticipation of the literary fame awaiting him, proceed until he had printed off forty copies of the first three hundred pages, his press only permitting him to do a single page at a time. Confident that he had now produced so ample a specimen of the work as would be certain to secure for it the general patronage of the learned, he here suspended his labours for a while; and having forwarded copies to the Royal Society, the universities, certain of the bishops, and the editors of the principal reviews, waited with eager expectation for the notice and assistance which he conceived himself sure of receiving from some of these quarters. He waited, however, in vain; the looked-for encouragement came not. Still, although thus a second time disappointed, he was not to be driven from his purpose, but returned with unabated courage to his neglected labours. He no doubt thought that posterity would repair the injustice of his contemporaries. In one respect, however, he determined to alter his plan. His presents to the bishops, critics, and learned bodies, had cost him twenty-six of his forty copies; and for the completion of these, so thanklessly received, he naturally enough resolved that he would give himself no further trouble, but limit the impression of the remainder of the work, so as merely to complete the fourteen copies which he had reserved, in this way saving both his labour and his paper. And he had at last, after thirteen years of unremitting toil, the gratification of bringing his extraordinary undertaking to a conclusion. The book, when finished, the reader will be astonished to learn, extended to no fewer than twenty six volumes 8vo., of nearly 500 pages each! In a like spirit of independence

he next bound all the fourteen copies with his own hands; after which he proceeded in person to London, and deposited one in each of the principal public libraries there. We may smile at so preposterous a dedication of the labours of a life-time as this; but, at least, the power of extraordinary perseverance was not wanting here, nor the capability of being excited to arduous exertion, and long sustained under it, by those motives that act most strongly upon the noblest natures—the consciousness of honourable pursuit, and a trust in the verdict of posterity. It is true this temper of mind might have been more wisely exercised; and the patience, ingenuity, and toil, which were expended upon a performance of no great use in itself, bestowed upon something better fitted to benefit both the zealous labourer and his fellow-men. Yet this consideration does not entitle us to refuse our admiration to so rare an example of the unwearied and inflexible prosecution of an object, in the absence of all those vulgar encouragements which are generally believed and felt to be so indispensable.*

* There is a short notice of Mr. Davy in the 'Quarterly Review,' vol. viii. and another containing some additional particulars in Gorton's 'Biographical Dictionary.' But the account that has been here given is principally from the communication of a valued correspondent, to whom the reverend gentleman was known. "A few years after the completion of his work,' continues our authority, "I became acquainted with him. Though advanced in years, and much disappointed at the neglect he conceived he had experienced, he still hoped that a time would come when his labours would be noticed. His genius was decidedly mechanical, and his industry great. He had formed a curious garden among the rocks close to his house, and his health and strength were unabated. He showed me the only copy of his work in his possession. It was a curious one, being interspersed with manuscript remarks. The printing was not elegant, but fair and legible. He still entertained hopes that the whole would be reprinted, as well as an index which he had completed to it in two volumes. In the year 1823 he recommenced his printing, and worked off a new volume of sermons; and in 1825, he published at Exeter, an abridgment of his system

There is nothing more depressing to the spirit than protracted exile or imprisonment; yet we have many instances of the successful pursuit of literary labours under these heavy inflictions. The case of OVID will occur to the recollection of many of our readers. He spent the last years of his life in banishment among the barbarians of Tomi, on the inhospitable coast of the Black or Euxine Sea, having been sent thither by order of the Emperor Augustus, and stripped of all his property, as well as torn from his wife and family. For a long time despair was the only feeling which the mind of the poet could indulge under his changed fortunes; but he rose at last above the pressure of his deprivations, and some of the finest works that he has left us were written in that abode of universal rudeness and desolation, for which he had been obliged so suddenly to exchange the splendid and luxurious capital of the world. He even learned the language of the Getae, among whom he lived; and, as he tells us himself, took the trouble of composing a poem in that barbaric tongue, which procured him unmeasured admiration from his new associates. Ovid never again beheld his family or native country, but died among the Getae after an exile of seven or eight years, and

of divinity in two volumes, being then in his eighty-second year. [These volumes, however, the first of which contains a print of the author, were not, we believe, printed by himself.] In the following year he was presented by the Bishop of Exeter to the vicarage of Winckleigh, Devon. He was exceedingly gratified by this circumstance, and, contrary to the wishes of his friends, he removed to his living. The exertion was too much for him, and he died on the 13th of June, 1826, in his eighty-third year, and is buried at Winckleigh, having possessed his living only a few months. Having acquired some property during the latter part of his life, he founded a school for the poor at Lustleigh, and endowed it with a meadow, worth about three hundred pounds. He likewise subscribed towards building a school-room, and gave some handsome communion plate to the church."

in the fifty-ninth year of his age.* We have mentioned in a former chapter the translation, by our own Alfred the Great, of BOETHIUS'S 'Consolations of Philosophy.' This beautiful treatise was written in the beginning of the sixth century by Boethius, while confined under sentence of death in the tower of Pavia, and when he was not even allowed the use of books. In more modern times, BUCHANAN, as we have already stated, commenced his elegant Latin version of the Psalms, while lying in prison at Coimbra, in Portugal; and Don Quixote was written in a dungeon, to which an unjust judgment had consigned its great author. TASSO was shut up in a cell of the monastry of St. Anne, at Ferara, under the imputation of being deranged, when



TORQUATO TASSO.

* See a short but striking notice of Ovid's exile at Tomi in the concluding chapter of Mr. Grote's great work, vol. xii. pp. 641, 642. "The picture drawn by Ovid," Mr. Grote observes, "of his situation as an exile at Tomi, can never fail to interest from the mere beauty

he produced several of the ablest of his minor pieces both in prose and verse. An English poetical composition of great power, entitled 'A Song of David,' which was reprinted some years ago, and attracted considerable notice, in consequence of a resemblance which some stanzas of it were conceived to present to a celebrated passage in one of Lord Byron's works, was written by its author, CHRISTOPHER SMART, with charcoal on the walls of his cell, while confined in a mad-house. The learned JEROME MAGGI, who occupied a high situation under the Venetian government in the island of Cyprus, when it was attacked by the Turks in 1571, contrived, during the captivity to which he was afterwards subjected by the conquerors, to write his two Latin works, entitled 'On Bells,' and 'On the Wooden Horse,' both displaying great erudition, although he was altogether deprived of books, and obliged to toil so constantly the whole day, that the only leisure he had was what he stole from the hours allotted him for sleep, and although his life was spared only for about a year by his barbarous jailors, who at last finished their cruelties by strangling him in his dungeon. The French translation of the Scriptures, in thirty-two volumes, octavo, by LE MAISTRE, or SACI, as he chose to call himself by a transposition of his Christian name Isaac, or Isac, was commenced by the author while confined in the Bastille; the New Testament and a considerable part of the Old having been finished by him in the three years and a half during which his imprisonment lasted. LORENZO LORENZINI, a learned Italian who lived in the early part of the last century, relieved the weariness of an imprisonment of nearly twenty years by the composition of a work on Conic Sections. Our country-

and felicity of his expression; but it is not less interesting as a real description of Hellenism in its last phase, degraded and overborne by adverse fates.... His complaints run through the five books of the *Tristia*, and the four books of *Epistolæ ex Ponto*."

man, the famous WILLIAM PRYNNE, after having been condemned to imprisonment for life (from which, however, he was subsequently released), continued to write as actively and with as unconquered a spirit as he had done while at liberty. The celebrated Madame ROLAND,



MADAME ROLAND.

who perished in the storm of the French Revolution, wrote her well-known Memoirs during the two months she spent in prison immediately before her execution, while her own fate was full in her view, and that of her husband, to whom she was tenderly attached, and whose death, self-inflicted in his misery, so soon followed her own, was in suspense; and yet the manuscript, it has been remarked, scarcely exhibited an erasure.

Another name which naturally suggests itself to us under this head is that of our celebrated countryman, SIR WALTER RALEIGH, whose 'History of the World' is perhaps the greatest literary work ever accomplished under



SIR WALTER RALEIGH.

the circumstances we are now considering. Raleigh's life was a busy one from his earliest years, having been passed chiefly in the camp and on ship-board, amid the toils and agitations of war, and every other variety of daring and hazardous adventure. Yet thus occupied it was his custom to spend four hours every day in reading and study, only five being given to sleep. The duties of his situation, and the exercises he underwent to improve himself in his profession, employed the rest of his time. The first part of his 'History of the World' appeared when its author was sixty-two years of age, having been written in the Tower, to which he had been consigned

more than ten years before. All the time during which he was employed in composing the work, he was lying under that sentence of death which, a few years after his book was finished, was carried into execution by a singularly barbarous perversion of law. He had in the interim, as is well known, been not only liberated from confinement, but restored to public employment, and thus, by implication at least, pardoned, when advantage was taken of his condemnation fifteen years before to destroy him for his commission of certain other alleged offences, for which he was never brought to trial. His History ranks very high as one of the classical works of our language; exhibiting in its style one of the most perfect models we possess of that easy but vigorous and graphic eloquence, which testifies both the learning of the scholar and a mind fertilized by converse with the living world. It was the largest, but not the only literary performance with which he occupied the hours of his long imprisonment of twelve years, a period of his life during which he may be said, through these labours, to have earned his best and most enduring renown.

The unfortunate LADY JANE GREY, and her equally unfortunate cousin, QUEEN MARY of Scotland, both solaced hours of captivity, destined to terminate only on the scaffold, by learned labours. The ancestor of the latter, JAMES I. of Scotland, one of the most amiable and accomplished of princes, having been in his twelfth year taken captive on his way to France by one of the ships of King Henry IV. of England, was detained by him in close confinement for nearly twenty years, having been lodged in the first instance in the Tower, afterwards in the Castle of Nottingham, and eventually in that of Windsor. It was while in this last-mentioned prison that he wrote his beautiful allegory, 'The King's Quhair,' certainly the finest poem that had been yet produced in the English language, with the exception only of the immortal works of Chaucer. It was occasioned by his

passion for the Lady Joanna Beaufort, a young person of distinguished beauty, and nearly allied to the royal family, whom he afterwards married, and of whom he became enamoured by beholding her from the window of his apartments walking in the gardens of the Castle. Such examples as these call to remembrance what another of our poets, the elegant LOVELACE, has beautifully said, writing also from a place of confinement:—

> "Stone walls do not a prison make,
> Nor iron bars a cage;
> Minds innocent and quiet take
> That for an hermitage."

CHAPTER XVII.

DEFECTS OF THE SENSES OR OTHER NATURAL BODILY POWERS OVERCOME:—DEMOSTHENES; DE BEAUMONT; NAVARETE; SAUNDERSON; RUGENDAS; DIODOTUS; DIDYMUS; EUSEBIUS; NICASIUS DE VOERDA; DE PAGAN; GALILEO; EULER; MOYES.



DEMOSTHENES.—FROM AN ANTIQUE BUST IN THE TOWNELEY GALLERY.

Still more depressing than any of those deprivations which we have yet considered are such natural inflictions as close up altogether some one or more of the ordinary avenues by which knowledge finds its way into the mind, and thus seem to oppose an almost insurmountable

obstacle to the pursuit, perhaps, of the very studies in which the intellectual powers, thus cramped or darkened, might otherwise have been best fitted to excel. Several instances might be mentioned, in which individuals, strongly attached to a particular path of ambition, have, by mere perseverance, entirely overcome the slighter impediments presented by physical malconformation. Thus, for example, DEMOSTHENES is said to have strengthened a weak voice, and cured his natural indistinctness of articulation, by exercising himself in declamation while ascending the brow of a hill, or walking amid the noise of the waves along the sea-shore. Others have contrived to prosecute certain professional employments with distinguished success, under disadvantages of this sort which no discipline could cure. The French Advocate, ELIE DE BEAUMONT, who lived in the last century, after having been educated for the bar, found his voice so weak as completely to prevent his making any figure as a speaker; but, by devoting himself to the writing of memorials for his clients, he soon established for himself the most brilliant reputation as a master both of law and eloquence. The celebrated Spanish painter, FERNANDEZ NAVARETE, was seized with an illness, when only two years old, which left him deaf and dumb for life. Yet in this state he displayed from his infancy the strongest passion for drawing, covering the walls of the apartments with pictures of all sorts of objects, done with charcoal; and, having afterwards studied under Titian, he became eventually one of the greatest artists of his age. Navarete, who flourished in the sixteenth century, could both read and write, and even possessed considerable learning.

Blindness, however, is the calamity that seems most effectually to shut the mind up from the acquisition of knowledge. Yet we have many examples of the attainment of distinguished eminence in intellectual pursuits, under this severe deprivation.

Nicholas Saunderson was born at the village of Thurston, in Yorkshire, in 1682. He was only a year old, when he was deprived, by small-pox, not only of his sight, but even of his eyes themselves, which were destroyed by abscess. Yet it was probably to this apparent misfortune that Saunderson chiefly owed both a good education, and the leisure he enjoyed from his earliest years, for the cultivation of his mind and the acquisition of knowledge. He was sent when very young to the free-school at Penniston, in the neighbourhood of his native place; and here, notwithstanding the mighty disadvantage under which it would seem that he must have contended with his schoolfellows, he soon distinguished himself by his proficiency in Greek and Latin. It is to be regretted that we have no account of the mode of teaching that was adopted by his master in so singular a case, or the manner in which the poor boy contrived to pursue his studies in the absence of that sovereign organ to which the mind is wont to be chiefly indebted for knowledge. Some one must have read the lesson to him, till his memory, strengthened by the habit and the necessity of exertion, had obtained complete possession of it, and the mind, as it were, had made a book for itself, which it could read without the assistance of the eye. At all events, it is certain that the progress he made in this part of his education was such as is not often equalled even by those to whom nature has given all the ordinary means of study; for he acquired so great a familiarity with the Greek language, as to be in the habit of having the works written in it read to him, and following the meaning of the author as if the composition had been in English, while he showed his perfect mastery over the Latin, on many occasions in the course of his life, by both dictating and speaking it with the utmost fluency and command of expression.

These acquirements were due of course, in a great measure, to an excellent memory, which again owed, no

doubt, much of its power and aptitude to the very difficulties under which it was obliged to exert itself. Every one of our faculties, corporeal and mental, is to a certain extent weakened, or at least prevented from reaching its utmost possible vigour and development, by the assistance it usually receives in its labours from other faculties. Individuals deprived of the use of their hands have learned to write and paint with their toes; no reason in the world, certainly, why those in possession of the fitter and more natural instrument should relinquish it for the other, but yet an evidence of how much more some of our members are capable of performing, and may be made by a certain discipline to perform, than we generally suppose. The German painter, RUGENDAS, celebrated for the spirit of his battle-pieces, was originally an engraver, but was obliged to abandon that profession in consequence of a weakness in his right hand, which, however, permitted him to manage the pencil, although not the burin, and accordingly he applied himself to painting. But, some years after, his disease increased so much that, even for the lighter work it had now to do, his right hand became quite unserviceable; and he would have been without a profession, or any means of subsistence at all, if he had not determined to make his left hand supply the place of its disabled companion. The experiment, after being persevered in for some time, succeeded perfectly, and he came at last to use the one hand with more ease and effect than he had ever done the other.

Any one of us, it is obvious from this, might acquire for himself two right hands instead of one, if he thought it worth his while, and chose to take the requisite pains. And the same rule holds as to the other organs and higher faculties. The peculiar attribute of the eye is to distinguish colours; there is none of its other functions which may not be performed by some one or more of the other senses. But yet it does commonly serve us in a

variety of other ways; or rather by means of the power it possesses of distinguishing colours, it is able better than any of the other senses to do us certain services which yet they also might be made to perform. However convenient this arrangement may be in most respects, it is not unattended with disadvantages. If we did not possess the faculty of sight, or never opened our eyes except when we wanted merely to distinguish colours, many of our other senses and faculties would acquire a degree of power of which we have scarcely any conception. We derive more knowledge of the external world from the eye, than from all our other senses put together; for it is its power of distinguishing colours which we chiefly make use of to measure every variety of distance, form, and motion, which objects assume, and of many of them to ascertain even a multitude of other qualities. Above all, it is by this simple power of distinguishing colours that we read books, and are enabled to drink our fill from these most abounding fountains of knowledge and reflection. But, even without the eye, we should not be altogether destitute of the means of forming an acquaintance with the things around us. We should only have to make our other faculties do more than they now do. Our touch would detect inequalities in surfaces that now feel to us perfectly smooth; our taste and smell would acquire a delicacy and power of discernment, which would enable them to intimate to us, with exactness, the presence or approach of many bodies and substances, by which they are now scarcely affected: our hearing would come to their aid with a fineness of perception and discrimination that would tell the direction and distance of every sound, and measure with ease and instinctively differences of tone which at present only the closest attention can render sensible to the acutest ear. Undoubtedly we derive all this knowledge with infinitely greater convenience through the medium of the eye, than we should do by this augmentation of

the powers of our other senses, which, if so invigorated, would probably occasion us no little annoyance and discomfort in conveying to us the information we sought from them—to say nothing of the extremely inferior degree of service they would after all render us as compared with that which we receive from the eye. But the consideration of these sleeping capabilities which are in us (beside its importance in a philosophic point of view) ought not to be without its use in showing us, should we be deprived of the most valuable of our bodily organs, what resources we still have for perseverance to avail itself of; and perhaps also in exciting us to bestow a little more pains than we ordinarily do in what we may call the education of those of our natural powers, which, however susceptible of being put to profitable exercise, we are apt to allow to remain inactive, merely because we do not find it absolutely necessary to make a call upon them for their services.

What has been stated may teach us at least how much more efficient we might make almost any one of our faculties by subjecting it to the proper discipline. They are all invigorated by the habit of exertion. And more especially may the memory be rendered, by judicious cultivation, both quick and retentive, to a degree of which its ordinary efficiency seems to give no promise. In blind men this faculty is almost always powerful. Not having the same opportunities which others enjoy of frequent or long-continued observation in regard to things with which they wish to make themselves acquainted, or of repeated reference to sources of information respecting them (their knowledge coming to them mostly in words, and not through the medium of the eye, which in general can both gather what it may desire to learn more deliberately, and recur at any time for what may have been forgotten to some permanent and ready remembrancer), they are obliged to acquire habits of more alert and watchful attention than those

who are beset by so many temptations to an indolent and relaxed use of their faculties, as well as to give many matters in charge to their memory which it is not commonly thought worth while to put it to the trouble of treasuring up. Their reward for all this is an added vigour of that mental power, proportioned to the labour they give it to perform. But any one of us might improve his memory to the same extent by a voluntary perseverance in something like the same method of discipline in regard to it, to which a blind man is obliged to resort. The memory is not one of the highest faculties of the mind, but it is yet a necessary instrument and auxiliary both in the acquisition and application of knowledge. The training, too, it may be observed, which is best adapted to augment its strength, is exactly that which, instead of being hurtful to any of our other faculties, must be beneficial to them all.

On being brought home from school, young Saunderson was taught arithmetic by his father, and soon evinced as remarkable an aptitude for this new study, as he had done for that of the ancient languages. A gentleman residing in the neighbourhood of his native village gave him his first lessons in geometry; and he received additional instruction from other individuals, to whose notice his unfortunate situation and rare talents introduced him. But he soon got beyond all his masters, and left the most learned of them without anything more to teach him. He then pursued his studies for some time by himself, needing no other assistance than a good author and some one to read to him. It was in this way he made himself acquainted with the works of the old Greek mathematicians, Euclid, Archimedes, and Diophantus, which he had read to him in the original.

But he was still without a profession, or any apparent resource by which he might support himself through life, although he had already reached his twenty-fourth or twenty-fifth year. His own wish was to go to the

university; but the circumstances of his father, who held a place in the excise, did not enable him to gratify this ambition. At last, however, it was resolved that he should proceed to Cambridge, not in the character of a student, but to open classes for teaching mathematics and natural philosophy. Accordingly, in the year 1707, he made his appearance in that university, under the protection of a friend, one of the Fellows of Christ's College. That Society, with great liberality, immediately allotted him a chamber, admitted him to the use of their library, and gave him every other accommodation they could for the prosecution of his studies. It is to be recorded, likewise, to the honour of the eccentric Whiston, who then held the Lucasian Professorship of Mathematics in the University (a chair in which he had succeeded Sir Isaac Newton, having been appointed at the express recommendation of that great man), that, on Saunderson opening classes to teach the same branches of science upon which he had been in the habit of reading lectures, he not only showed no jealousy of one whom a less generous mind might not unnaturally have regarded as a rival and intruder, but exerted himself, in every way in his power, to promote his success. Saunderson commenced his prelections with Newton's Optics. The Newtonian philosophy was as yet only beginning to attract attention among the learned at Cambridge. Whiston himself informs us, in that curious production called his Memoirs, that his own attention had been first strongly excited to the Principia by a paper written by Dr. [David] Gregory (nephew of the celebrated James Gregory, whom we have already mentioned), when professor at Edinburgh, "wherein," says he, "he had given the most prodigious commendations to that work, as not only right in all things, but in a manner the effect of a plainly divine genius; and had already caused several of his scholars to keep Acts, as we call them, upon several branches of the Newtonian philosophy;

while we at Cambridge, poor wretches! were ignominiously studying the fictitious hypothesis of the Cartesian, which Sir Isaac Newton had also himself done formerly, as I have heard him say."

The subject itself which Saunderson chose, independently of the manner in which he treated it, was well calculated to attract notice, few things seeming at first view more extraordinary than that a man who had been blind almost from his birth should be able to explain the phenomena and expound the doctrines of light. The disadvantage under which Saunderson laboured here, however, was merely that he did not know experimentally the peculiar nature of the sensations communicated by the organ of vision. There was nothing in this to prevent him from apprehending perfectly the laws of light—that it moves in straight lines—that it falls upon surfaces and is reflected from them at equal angles—that it is refracted, or has its course changed, on passing from one medium into another of different density—that rays of different colours are so refracted in different degrees; and the consequences to which these primary laws necessarily lead. He was not, it is true, able to see the rays, or, rather, to experience the sensation which they produce by falling upon the eye; but, knowing their direction, he could conceive them, or represent them, by other lines, palpable to the sense of touch, which he did possess. This latter was the way he generally took to make himself acquainted with any geometrical figure. He had a board with a great number of holes in it, at small and regular distances from each other; and on this he easily formed any diagram he wished to have before him, by merely fixing a few pins in the proper places; and extending a piece of twine over them to represent the lines. In this manner, we are told, he formed his figures more readily than another could with a pen and ink. On the same board he performed his calculations, by means of a very ingenious

method of notation which he had contrived. The holes were separated into sets of nine, each set forming a square, having a hole at each corner, another at the middle point of each side, and one in the centre. It is obvious that in such a figure, one pin placed at the centre might be made to stand in any one of eight different positions with reference to another pin placed on the boundary line of the square; and each of these positions might represent, either to the eye or the touch, a particular number, thus affording signs for eight of the digits. Saunderson used to employ a pin with a larger head for the central hole; so that even when it stood alone, it formed a symbol easily distinguishable from any other. Lastly, by using two large-headed pins in one of the positions, instead of one with a large and another with a small head as usual, he formed a tenth mark, and so obtained representatives for the nine digits and the cipher—all the elementary characters required, as every one knows, in the common system of notation. Here, then, were evidently the means of performing any operation in arithmetic.

In a description of this contrivance, which we have from the pen of Mr. Colson, Saunderson's successor at Cambridge, we are assured that its inventor, in making use of it, "could place and displace his pins with incredible nimbleness and facility, much to the pleasure and surprise of all the beholders. He could even break off in the middle of a calculation, and resume it when he pleased, and could presently know the condition of it by only drawing his fingers gently over the table." But Saunderson was also wont to perform many long operations, both in arithmetic and algebra, solely by his powerful and admirably disciplined memory. And his mind, after having once got possession of even a very complicated geometrical figure, would, without the aid of any palpable symbols, easily retain a perfect conception of all its parts, and reason upon it, or follow

any demonstration of which it might be the subject, as accurately as if he had it all the while under his eye. It occasionally cost him some effort, it was remarked, to imprint upon his mind, in the first instance, a figure unusually intricate; but when this was once done all his difficulties were over. He seems indeed to have made use of sensible representations chiefly in explaining the theorems of science to his pupils. In the print prefixed to his Algebra, he is represented discoursing upon the geographical and astronomical circles of the globe by the assistance of an armillary sphere constructed of wood. His explanations were always remarkable for their simplicity and clearness, qualities which they derived, however, not from any tedious or unnecessary minuteness by which they were characterised, but from the skill and judgment with which he gave prominence to the really important points of his subject, and directed the attention of his hearers to the particulars most concerned in its elucidation.

His ability and success as a teacher continued and augmented that crowded attendance of pupils, which, in the first instance, he had owed perhaps principally to the mere curiosity of the public. Every succeeding University examination afforded additional evidence of the benefit derived from his prelections. His merits, consequently, were not long in being appreciated both at Cambridge and among scientific men in general. He obtained the acquaintance of Sir Isaac Newton, his veneration for whom was repaid by that illustrious philosopher with so much regard, that, when Whiston was expelled from his chair in 1711, Sir Isaac exerted himself with all his influence to obtain the vacant situation for Saunderson. On this occasion, too, the heads of colleges applied to the Crown in his behalf to issue a mandate for conferring upon him the degree of Master of Arts, as a necessary preliminary to his election; and, their request being complied with, he was appointed to

the professorship. From this time Saunderson gave himself up almost entirely to his pupils. Of his future history we need only relate that he married in 1723, and was created Doctor of Laws in 1728, on a visit to George II. to the University, on which occasion he delivered a Latin oration of distinguished eloquence. He died in 1739, in the 57th year of his age, leaving a son and daughter.

His constant labours as a teacher had left him but little time to prepare anything for the press. But an able and well-known treatise on Algebra, which he had employed his latter years in compiling, appeared in two volumes quarto the year after his death. With the exception of a work on Fluxions, and a Latin commentary on Sir Isaac Newton's 'Principia,' which were printed together several years afterwards, none of the other papers left by this eminent mathematician have yet been given to the world.

Saunderson's knowledge of the external world, as we have already observed, was principally obtained by his sense of touch, which he possessed in exquisite perfection. He could not, however, by this means distinguish colours, as it has been asserted that blind men have sometimes done; and after many efforts he became convinced that the attempt was quite impossible. But he would detect counterfeit from genuine medals with great exactness, even in cases in which able connoisseurs were deceived. He always felt a roughness on the new cast coin, although imperceptible either to the touch or the eye of others. His feeling of the changes of the atmosphere was in like manner, as might be supposed, extremely delicate. "I have been present with him in a garden, making observations on the sun," says the writer of the account of his life prefixed to his Algebra, who had been one of his intimate friends, "when he has taken notice of every cloud that disturbed our observation, almost as justly as we could. He could tell when

anything was held near his face, or when he passed by a tree at no great distance, provided the air was calm, and little or no wind; these he did by the different pulse of the air upon his face." His sense of hearing, too, was exceedingly refined; and it was thought that he might have risen to great eminence as a musician, if his geometrical talents had not withdrawn him to other pursuits. He played with great skill on the flute; but the principal advantage which he derived from the accuracy of his ear was the means it afforded him, in the absence of a higher sense, of distinguishing not only persons by the sound of their voices, but places, distances, and the different sizes of rooms, by the echo which they returned of his own voice or his tread. To such perfection had he carried the art of interpreting these signs, which are so vague to ordinary observers, because so little noticed by them, that we are told he scarcely ever was carried a second time to any place in which he had once been, without recognising it.

Saunderson is not the only blind mathematician on record. The writer of his life whom we have already quoted mentions DIODOTUS the Stoic, DIDYMUS of Alexandria, EUSEBIUS, and NICASIUS DE VOERDA. Diodotus was the preceptor of Cicero in Greek literature and geometry, and, as that great philosopher himself informs us, lived many years in his house after becoming blind, giving himself to philosophy more assiduously than ever, and even continuing to teach geometry; a thing, says Cicero, which one would think scarcely possible for a blind man to do, yet would he direct his pupils where every line was to be drawn just as exactly as if he had had the use of his eyes. This was nothing, however, to what Saunderson did, who directed his pupils how to draw figures not only which he did not see, but which he had never seen. Didymus, who flourished in the fourth century, is known only as a theological writer; but we are informed by St. Jerome, who was his pupil,

that, although he lost his sight at five years of age, he distinguished himself at the school of Alexandria by his proficiency not merely in grammar, rhetoric, logic, music, and arithmetic, but in the remaining two of the seven departments then conceived to constitute the whole field of human learning, geometry and astronomy, sciences of which, remarks the narrator, it is scarcely conceivable how any knowledge should be obtained without the assistance of the eye. Didymus, like Saunderson, pursued his studies by employing persons to read for him. Sometimes, we are told, his readers would fall asleep at their task; the subject was not always so interesting to them as it was to him; but this was no inconvenience or hindrance to Didymus, for he employed the time till they awoke in meditating upon what he had been hearing, and was only the better able for the interruption to attend to and follow them when they resumed their labours. Another of his disciples, Palladius, remarks, that blindness, which is to others so terrible a misfortune, was the greatest of blessings to Didymus, inasmuch as, by removing from him all objects that would have distracted his attention, it left his faculties much more at liberty than they otherwise would have been for the study of the sciences. Didymus, however, does not seem to have been himself altogether of this opinion, since we find it recorded, that when St. Anthony, who, attracted by the report of his wonderful learning and sanctity, had come from the desert to pay him a visit, put to him the question, "Are you grieved that you are blind?" although it was repeated several times. Didymus could not be prevailed upon to return any other answer than that he certainly was,—greatly to the mortification of the Saint, who was astonished that a wise man should lament the loss of a faculty which we only possess, as he chose to express it, in common with the gnats and ants. The old Greek philosopher, Democritus, who is said by some authors to have actually put out his eyes in order

that he might the better fit himself for the study of philosophy, would have presented a spectacle more to the taste of Anthony.

The Eusebius mentioned above is not the celebrated ecclesiastical historian, but a person of the same name described by Cassiodorus as an Asiatic, and eminent for his learning and his ability as a teacher, although he had lost his sight at five years of age, his right eye having become opaque, and his left being altogether destroyed. Nicasius de Voerda, or of Woerden (sometimes also called Nicasius of Mechlin, or Malines), taught the canon and civil law in the university of Cologne, in the fifteenth century, and is said to have possessed extraordinary erudition both in literature and science, although he had been blind from his third year. He was wont to quote with great readiness the books of which he had acquired a knowledge only from having heard them read by others.*

To these instances we may add that of the COUNT DE PAGAN, who was born in the beginning of the seventeenth century, and has been accounted the father of the modern science of fortification. Having entered the army at the early age of twelve, he lost his left eye before he was seventeen, at the siege of Montauban.

* It was the example of Nicasius of Woerden, or Nicaise de Vourde, as he is called by French writers, which excited another blind individual, Dr. Nicholas Bacon, to pursue the study of the law. Dr. Blacklock, in the article on the Blind which he wrote for the Encyclopædia Britannica, informs us that he had corresponded by letter with this gentleman, who resided in the Netherlands, but was, he says, of the same family with the Lord Chancellor Bacon. He lost his sight, when only nine years old, by a wound from an arrow; but, having recovered his health, he determined to continue his studies as before, until, as well as Nicaise, he should obtain his degree of Doctor of Laws. Accordingly, having finished his education at school, he proceeded to college, where, having greatly distinguished himself, he in due time attained the title of which he was so ambitious, and became eventually one of the most eminent advocates in the council of Brabant.

He still, however, pursued his profession with unabated ardour, and distinguished himself by many acts of brilliant courage. At last, when about to be sent into Portugal with the rank of Field Marshal, he was seized with an illness which deprived him of his remaining eye. He was yet only in his thirty-eighth year, and he determined that the misfortunes he had already sustained in the service of his country should not prevent him from recommencing his public career in a new character. He had always been attached to mathematics; and he now devoted himself assiduously to the prosecution of his favourite study, with a view principally to the improvement of the science of fortification, for which his great experience in the field particularly fitted him. During the twenty years after this which he passed in a state of total blindness, he gave a variety of publications to the world; among which may be mentioned, besides his well-known and largest work, on Fortification, his 'Geometrical Theorems,' and his 'Astronomical Tables.' He is also the author of a rare book called 'An Historical and Geographical Account of the River of the Amazons,' which is remarkable as containing a chart asserted to have been made by himself after he was blind. It is said not to be very correct, although a wonderful production for such an artist.

The great Galileo lost his sight three or four years before his death, from exposure to the night air while prosecuting his observations on the satellites of Jupiter; but he is rather to be reckoned on this account among the martyrs of science than as being to be noted for having continued his researches notwithstanding the deprivation that had befallen him. Yet, for the short time that his life was prolonged, he did not relinquish his favourite studies. The celebrated Euler, however, affords us a better instance for our present purpose. This distinguished mathematician was struck with blindness in his fifty-ninth year, his sight having fallen a

sacrifice to his indefatigable application. He had literally written and calculated himself blind. Yet after this misfortune he continued to calculate, and to dictate books, at least, if not to write them, as actively as ever. His 'Elements of Algebra,' a work that has been translated into every language of Europe, was thus dictated by him to an amanuensis, who was only a tailor's apprentice; but who, though altogether unacquainted with algebra when he began his task, is said to have acquired a complete knowledge of that science in the course of merely taking down what Euler spoke, with such admirable clearness and simplicity is the work composed. His Algebra was followed by several other most ingenious and elaborate works, among which particularly deserve to be mentioned his 'New Theory of the Moon's Motions,' and the tables by which it was accompanied, the computation of which, by a person in Euler's situation, not only deprived of sight, but harassed by other misfortunes (for, while he was engaged on this work, his house was burned to the ground by a fire, from which he narrowly escaped with his life), cannot but be regarded as one of the most wonderful triumphs ever achieved by the energy of mind over the opposition of circumstances. But Euler affords us in every way the most remarkable example on record of activity in scientific labours. The mere catalogue which has been published of his works extends to fifty printed pages. "It may be asserted, without exaggeration," says Lacroix,* "that he composed more than one-half of the mathematical memoirs contained in the forty-six quarto volumes which the Academy of Petersburg published from 1727 to 1783; and he left at his death about a hundred memoirs ready for the press, which the same Academy inserts successively in the volumes it still continues to give to the world. In addition to this immense mass of productions,

* Biographie Universelle.

he composed various separate works, extremely important in respect of the subjects of which they treat, and many of them of considerable magnitude. He likewise greatly enriched the collections of the Academy of Berlin, during the twenty-five years which he passed in that city. He presented several memoirs to the Academy of Sciences of Paris, the prizes offered by which he ten times succeeded in carrying or dividing; nor did he disdain to contribute to the transactions of less illustrious associations of the learned. In fine, it requires the incontrovertible evidence of facts to convince us that so many labours can all have been performed by one man, who passed the last seventeen years of his life in a state of blindness." As a proof that even this statement rather underrates than exaggerates the amazing industry and fertility of Euler, we may just add, that, in the list of his works already referred to, there are enumerated, of separate publications alone, twenty-nine volumes quarto, and two octavo, in Latin; one volume quarto, and six octavo, in German; and five volumes octavo, in French. Euler died in 1783, at the age of seventy-six.

Dr. HENRY MOYES was born at Kirkaldy, in Fifeshire, in 1750, and lost his sight by small-pox before he was three years old, so that he scarcely retained in after-life any recollection of having ever seen. Yet he used to say, that he remembered having once observed a water-mill in motion; and it is characteristic of the tendencies of his mind, that even at that early age his attention was attracted by the circumstance of the water flowing in one direction, while the wheel (being what is called an undershot wheel) turned round in the opposite, a mystery on which he reflected for some time before he could comprehend it. Blind as he was, he distinguished himself when a boy, by his proficiency in all the usual branches of a literary education. But "mechanical exercises," says Mr. Bew, who has given a short account

of him in the first volume of the 'Memoirs of the Literary and Philosophical Society of Manchester,' "were the favourite employments of his infant years. At a very early age he made himself acquainted with the use of edged tools so perfectly, that, notwithstanding his entire blindness, he was able to make little windmills; and he even constructed a loom with his own hands, which still show the cicatrices of wounds he received in the execution of these juvenile exploits." Besides a knowledge of the ancient languages, and of music, he is stated by Mr. Bew, who became acquainted with him about the year 1782, to have made himself extensively conversant with Algebra and Geometry, and with Chemistry, Mechanics, Optics, Astronomy, and the other departments of Natural Science. At this time he was engaged in delivering lectures on Chemistry and Natural Philosophy in the different large towns throughout the country. He used to perform all his experiments, we are told, with his own hands, and with extraordinary neatness. Moyes possessed all that extreme delicacy in the senses of touch and hearing for which the blind have usually been remarkable. We have been told, that having been one day accosted in the street by a young friend whom he had not met with for a good many years, his instant remark, on hearing his voice, was, "How much taller you have grown since we last met!" When first brought into a company, his custom was to remain silent for a short time, until, by the sound of the different voices, he had made himself acquainted with the size of the room, and the number of persons in it. He was then quite at his ease, readily distinguished one speaker from another, and shone greatly himself by his powers of conversation. Although at that time not in affluent circumstances, and having indeed nothing to depend upon except the very precarious occupation to which he had betaken himself, he was remarkable for his cheerfulness and buoyant spirits. He contrived for

himself a system of palpable arithmetic, on a different principle from that of Saunderson, and superior in neatness and simplicity. An explanation of it may be found in a letter from himself, inserted in the Encyclopædia Britannica under the article *Blind*. Dr. Moyes, who must have been a person of extraordinary mental endowments, and who affords us certainly, next to Saunderson, the most striking example on record of attainments in the Mathematics, made without any assistance from the eye, received his degree from a college in America, in which country he lectured for some years. He eventually made in this way a good deal of money; and some time before his death had retired to the town of Pittenweem, not far from the place of his nativity, where his society was much courted. He survived till 1807. His lectures are said to have been well delivered, and his explanations were eminently perspicuous. It has been reported that he could distinguish colours by the touch; but, as this circumstance is not mentioned in his friend Dr. Blacklock's article just referred to, we may fairly assume that he did not himself pretend to the possession of any such power.

CHAPTER XVIII.

DISTINCTION ACQUIRED BY THE BLIND IN OTHER INTELLECTUAL FIELDS:—HOMER; MILTON; SALINAS; STANLEY; METCALF; HENRY THE MINSTREL; SCAPINELLI; BLACKLOCK; ANNA WILLIAMS; HUBER.

MATHEMATICAL investigation is, strictly speaking, merely a mental exercise, and it is certainly conceivable that every theorem man has yet demonstrated in *abstract science* might have been discovered by him without the aid of his external senses. But, on the other hand, every operation of mind is so greatly facilitated by the employment of sensible symbols, and especially the processes of acquiring, apprehending, and recollecting knowledge, as well as of pursuing long and intricate calculations or deductions, receive such important assistance from those lines, figures, letters, and other marks which may be made to present the record of every thought faithfully to the eye, that we are justified in quoting any remarkable case of progress, even in abstract science, attained without the aid of this invaluable organ, as a noble example of what perseverance may accomplish in the face of the most formidable difficulties. It is much even for the mind to rise superior to so crushing a calamity as the loss of sight, and to maintain or recover its spirit of exertion under a deprivation which may be said to take from it for ever that which nature has appointed to be at once the chief helpmate and best sweetener of its labours. It would seem almost as if life could scarcely continue desirable to him whose

hourly thought may be expressed, in the language, familiar to all, of Milton's beautiful and pathetic lamentation:—

"——— with the year
Seasons return; but not to me returns
Day, or the sweet approach of even or morn,
Or sight of vernal bloom, or summer's rose,
Or flocks, or herds, or human face divine;
But cloud instead, and ever-during dark
Surrounds me, from the cheerful ways of men
Cut off, and, for the book of knowledge fair,
Presented with a universal blank
Of Nature's works, to me expunged and rased."

What an attestation to the medicinal value of intellectual labour, that it has so often cheered even such desolation as this! and how strong must be the natural love of knowledge in the human mind, that even in the midst of such impediments to its gratification it has in so many instances so eagerly sought and so largely attained its end!

After the examples we have mentioned of individuals who in this state of blindness have distinguished themselves by their eminence in the severest exercises of the mind, it may be thought less surprising that others should, in the same condition, have devoted themselves with success to pursuits of a less laborious character, and not so rigorously taxing the attention and the memory. Poetry and music, for example, may be deemed the especially appointed occupations of the blind, as having their subject and their materials chiefly in the imagination and the affections, and being apparently better fitted to dispense with the aid of visible symbols than the intricate reasonings and calculations of science. Yet even poetry owes much of its inspiration to the eye wandering in freedom over nature; and more to that serenity and gladness of the soul, which so heavy an affliction as the loss of sight

is apt to destroy or impair. Whosoever, therefore, suffering under this doom, shall not

> bate a jot
> Of heart or hope; but still bear up and steer
> Right onward,"

be the healing and strengthening toils in which he exercises his spirit those of science or of song, still presents us with an example of heroic wisdom well worthy of our admiration. It seems to have been the tradition of Greece, that the Iliad and Odyssey were both composed by HOMER after he was blind, although, of course, from materials which he had collected before that misfortune befel him: for it is very evident that the author of these poems must, at one time of his life, have surveyed whatever was most interesting that the world had at that early age to show, with no dim or unobservant eye. But of Homer, in truth, we know nothing. The origin of the Iliad and the Odyssey is the most perplexing problem in literature; and Homer must, in all probability, ever remain to us a mere name. The poems themselves are Homer, and perhaps there never was another. But if

> "Blind Thamyris, and blind Mæonides,
> And Tiresias, and Phineus, prophets old,"

instead of being fablers themselves, were merely the creations of other fablers, the Poet of Paradise at least uttered his harmonious numbers in darkness,—as he himself expresses it,

> "In darkness, and with dangers compassed round."

MILTON is supposed to have been in the fifty-fourth year of his age when he commenced the composition of his immortal epic, although the high theme had doubtless for some time before occupied his thoughts. At this period of his life he was quite blind, having lost his

sight, which had early begun to decay, during the composition of his famous Defence for the People of England, in answer to Salmasius. He felt the calamity that was coming upon him while occupied with this work, but the apprehension did not induce him even to relax his labours; and, after the foreseen event had occurred, we find him, in one of his majestic strains, consoling himself under the extinction of his sight by the thought of the cause in which he had sacrificed it:—

> "What supports me dost thou ask?
> The conscience, friend, to have lost them overplied
> In liberty's defence, my noble task,
> Whereof all Europe rings from side to side."

Paradise Lost was probably only the work of three or four years, since there is reason to believe that it was completed in 1665, although not published till 1667. But this poem, as is well known, was not the only fruit of the noble intellect of Milton, while bearing up against the accumulated pressure of disease, old age, and the "evil days" on which he had fallen. Beside a mass of philological labours of extraordinary magnitude, and several political tracts, which in eloquence and power are scarcely surpassed by anything he had written in the vigour of life and health, we owe to the blind old man the Paradise Regained, and the Samson Agonistes, the not unworthy companions of his grander song. We cannot mourn over the sightless orbs of Milton; he could not have done greater things than he did in his blindness:—

> "—— Samson hath quit himself
> Like Samson, and heroically hath finished
> A life heroic.——
> Nothing is here for tears, nothing to wail,
> Or knock the breast; no weakness, no contempt,
> Dispraise or blame; nothing but well and fair."

The Spanish musician, FRANCIS SALINAS, who flourished

in the sixteenth century, was born blind. Nevertheless, he early distinguished himself by his proficiency, not only in music, but in the ancient languages and in science. This blind man eventually became Professor of Music in the University of Salamanca; and he published an able work in Latin on the theory of his favourite science. We had in later times, in our own country, an eminent example of musical attainments made in similar circumstances to those of Salinas. JOHN STANLEY was born in London in 1713, and lost his eyesight, when only two years old, by a fall. In this condition he applied himself with such extraordinary success to the study of music, that in his eleventh year he was chosen organist to the church of Allhallows, in Bread-street, and two years afterwards obtained the same situation in the church of St. Andrew, Holborn, although opposed by many other candidates. From this he went, in 1734, to the Temple Church, having already, when only sixteen, taken his degree of Bachelor of Music at Oxford. Mr. Stanley died in 1786, after having for many years stood at the head of the practitioners of sacred music in England. The names of other distinguished musical composers, who were either born blind or became so in early infancy, might be added to these.

Nor is music the only one of the fine arts in which the blind have excelled. We read of a sculptor who became blind at twenty years of age, and yet ten years afterwards made a statue of Pope Urban VIII. in clay, and another of Cosmo II. of Florence, of marble. Another blind sculptor is mentioned by Roger de Piles, in one of his works on painting; he executed a marble statue of our Charles I. with great taste and accuracy. Nor ought we to be surprised at this dexterity, if we may believe what is told us of a young French lady, who lost her sight in her second year, and of whose marvellous accomplishments we have an account in the Annual Register for

1762. This lady is said, notwithstanding her blindness, to have been an excellent player at cards, a ready and elegant writer, and even to have been able to read written characters. On sitting down to play at cards, she first went over the pack, marking every one of the fifty-two cards by an indentation so slight as scarcely to be perceptible to any one else on the closest inspection, yet which she herself, by the delicacy of her touch, instantly recognised. She then proceeded without difficulty, only requiring, of course, that every card should be named as it was played. In writing she used a sharp and hard-pointed pencil, which marked the paper so as to enable her to read what she had written with her finger-ends. All this, it must be confessed, seems very like a fiction; but it is, perhaps, scarcely so wonderful as what is told of an English lady, who was examined by several eminent physicians, and among others by Sir Hans Sloane. She had been deprived by disease not only of her sight, but of her powers of speech and hearing, so that there remained only the organs of touch, taste, and smell, by which she could hold communication with others. Deaf, dumb, and blind as she was, however, she yet in course of time learned to converse with her friends by means of an alphabet made by their hands or fingers pressed in different ways upon hers. She very soon also acquired the power of writing with great neatness and exactness, and used to sit up in bed, we are told, at any hour of the night, either to write or to work, when she felt herself indisposed to sleep. We shall feel what an invaluable possession the knowledge of writing must have been to this individual, when we reflect, that, on first being reduced to the state of deplorable helplessness which she afterwards found admitted of so many alleviations, nothing but the power she still retained of scrawling a few words, which yet she could not discern, could have enabled her to communicate her wishes or feelings

to those around her. But for this power it would seem that she must have been for ever shut out from even the most imperfect intercourse with her species; for it was through it alone that she could intimate to them the meaning she wished to be given to each of the different palpable signs which constituted her alphabet. With this instrument of communication, the arrangement would be easily effected; it would otherwise, apparently, have been impracticable. We have abundant reason to set a high value on the art of writing, but to this person it was invaluable. To us it is the most useful of all the arts; to her it was the means of restoration to life from a state of exclusion, almost as complete as that of the grave.

But perhaps the most singular instance on record of a blind person triumphing over those difficulties of his situation, which are apparently most insuperable, is afforded in JOHN METCALF, or, as he was commonly called, Blind Jack, a well-known character, who died not many years ago. This person was a native of Manchester or the neigbourhood, and Mr. Bew has given an account of him in the paper we have already quoted. After telling us that he became blind at a very early age, so as to be entirely ignorant of light and its various effects, the narrative proceeds as follows:—"This man passed the younger part of his life as a waggoner, and occasionally as a guide in intricate roads during the night, or when the tracks were covered with snow. Strange as this may appear to those who can see, the employment he has since undertaken is still more extraordinary; it is one of the last to which we could suppose a blind man would ever turn his attention. His present occupation is that of projector and surveyor of highways in difficult and mountainous parts. With the assistance only of a long staff, I have several times met this man traversing the roads, ascending precipices, exploring valleys, and inves-

tigating their several extents, forms, and situations, so as to answer his designs in the best manner. The plans which he designs, and the estimates he makes, are done in a method peculiar to himself, and which he cannot well convey the meaning of to others. His abilities in this respect are nevertheless so great, that he finds constant employment. Most of the roads over the Peak in Derbyshire have been altered by his directions, particularly those in the vicinity of Buxton; and he is at this time constructing a new one betwixt Wilmslow and Congleton, with a view to open a communication to the great London road, without being obliged to pass over the mountains." Mr. Bew adds in a note, "Since this paper was written, and had the honour of being delivered to the Society, I have met this blind projector of the roads, who was alone as usual, and, amongst other conversation, I made some inquiries concerning this new road. It was really astonishing to hear with what accuracy he described the courses and the nature of the different soils through which it was conducted. Having mentioned to him a boggy piece of ground it passed through, he observed, that that was the only place he had doubts concerning; and that he was apprehensive they had, contrary to his directions, been too sparing of their materials."*

The old Scotch poet sometimes called HENRY the Minstrel, but better known as "Blind Harry," who h left a poem of great extent on the achievements Sir William Wallace, is said to have been born blind, In addition to his poetical powers, which are considerable, he seems to have possessed a knowledge of Latin and French, as well as of the principal sciences cultivated in his time. His work shows him to have had some acquaintance in particular both with divinity and astronomy, as well as with history. He flourished about the

* Memoirs of the Literary and Philosophical Society of Manchester, vol. i.

middle of the fifteenth century; and John Major, the historian, in whose youth he was still alive, tells us, that he was wont to recite his verses at the feasts of the nobility, "obtaining in that manner," he adds, "his food and raiment, of which he was worthy." Henry's work long continued a popular favourite in Scotland, and is still read by the peasantry in some parts of the country in a modernized form.

The Italian poet SCAPINELLI, who was born at Modena in 1588, was also blind from his birth. He held a Professor's chair successively at Bologna, Modena, and Pisa; and, having then been recalled to occupy the place of Chief Professor of Eloquence, on which he had long set his heart, in the first of these universities, died there in the forty-ninth year of his age. Scapinelli, besides several prose compositions, wrote verses both in Italian and Latin; and all his works are distinguished, not only by their learning, but by a purity and elegance of diction, rare at the time when he flourished. He was accounted, indeed, one of the most finished scholars of his day.

Nor should we forget the well-known name of the Rev. Dr. BLACKLOCK. He was born at the town of Annan, in Dumfries-shire, in 1721; and when no more than six months old he was reduced to a state of complete blindness by small-pox. To one in his circumstances this was a peculiarly heavy calamity; for his father was only a poor working mason, with several other children to provide for, and but little in a condition, therefore, to sustain the burden of a son, not only left more than usually dependent upon him during childhood, but seemingly unfitted for ever taking care of himself. But never were the duties of a father more admirably fulfilled than by this excellent man in his humble estate. His poor blind boy was the object of an unceasing tenderness and care, which, not satisfied with providing for the supply of his bodily wants, left nothing undone

that could contribute either to improve or amuse his mind, and so make up to him, as far as possible, for his melancholy deprivation. He delighted especially to spend his leisure hours in reading to him; and, finding him fond of poetry, he procured as many of the works of our English poets as he could, and thus nourished in him a passion which afterwards became one of the chief consolations of his life. In this way young Blacklock became a versifier himself at a very early age, some of his poems which were afterwards published being dated in his twelfth year. He had before this, however, been sent to school, where, in course of time, he became a tolerable proficient in the common branches of education, and even made considerable progress in the knowledge of the Latin language; having been very much indebted, in making these attainments, to the assistance of his schoolfellows, to all of whom his gentle and yet lively and playful disposition, as well as his helplessness, greatly endeared him. At last, however, in his nineteenth year, he lost his inestimable father. Helpless as he was, and rendered more so than he would otherwise have been from the very excess of care he had heretofore experienced, he was now left apparently without a friend on earth from whom he could expect a continuation of the attentions he so much needed; and the prospect before him was as gloomy as it is possible to imagine. He has expressed the feelings with which he looked forward to the future at this time in some very pathetic verses, which are to be found among his printed poems. He was not, however, left long without a protector. His case having reached the ear of Dr. Stephenson, one of the Medical Professors in the University of Edinburgh, that gentleman generously invited him to come to the Scottish metropolis, where he engaged to find him the means of pursuing his studies at College. Blacklock gladly accepted this liberal offer. While in Edinburgh, he

availed himself with eagerness of every opportunity of improvement which presented itself. Thus, for instance, he acquired a familiarity with the French language by conversing with a lady of his acquaintance, who was a native of France. When he had been a few years at the university, he published, at the suggestion of his friends, a volume of poems; and this attracted to him the more general notice of the literary world. Among others whose attention was drawn to the productions of the blind poet was Mr. Spence, Professor of Poetry at Oxford, who published a critical review of them, accompanied by a sketch of their author's history, which had a great effect in making him more extensively known. In the meanwhile, Blacklock continued his studies at Edinburgh, until he had finished the usual course of education prescribed to candidates for the ministry in the Scotch Church, which occupied him ten years. In 1754 a second edition of his poems was published by subscription; and, having been a few years afterwards licensed by the Presbytery as a preacher, he was inducted to the church of Kirkcudbright, on the presentation of the Earl of Selkirk. So much opposition, however, was made by the inhabitants of the place to this arrangement for giving them a blind clergyman, that Blacklock was soon induced to resign his appointment for a small annuity. With this provision he returned to Edinburgh; and, being now married, opened an establishment for receiving boarders, whose studies he proposed to superintend. In this occupation, and in a variety of literary pursuits, he spent his remaining life, and died at Edinburgh in 1791. He had received the Degree of Doctor of Divinity, in 1766, from one of the universities of Aberdeen, and may be said to have eventually attained a highly respectable place among the literary characters of his time, although his poetry does not indicate a great deal of power. He possessed, however, we are told, wonderful facility in verse-making,

and used sometimes to dictate thirty or forty verses to his friends almost as fast as they could be written down. His chief enjoyments were conversation and music; and, although not unvisited by occasional depression of spirits, he was generally cheerful, and seemed, indeed, to enjoy life as much upon the whole as any of his friends whom nature had more bountifully endowed. One of the most interesting of Dr. Blacklock's productions is his paper, to which we have already more than once referred, on the Blind, in the Encyclopædia Britannica. He produced, also, a few other performances in prose of greater extent.

At this time, too, lived an English female poet, who was also blind, Miss ANNA WILLIAMS. This lady came to London in 1730, when only twenty-four years of age, with her father, a Welsh surgeon, who had given up his profession in consequence of imagining that he had discovered a method of finding the longitude at sea, which would make his fortune. After many efforts, however, to obtain the patronage of Government for his scheme, and having exhausted his resources, he was obliged to take refuge in the Charter-house. His daughter, who had been liberally educated, and had at first mixed in all the gaieties of the metropolis, was now obliged to support both him and herself by working at her needle. But, after struggling in this way for some years, she lost her sight by a cataract. Her situation, it might be imagined, was now both helpless and hopeless in the extreme; but a strong mind enabled her to rise above her calamity. She not only continued the exercise of her needle, we are told, with as much activity and skill as ever, but, never suffering her spirits to droop, distinguished herself just as she had been used to do, by the neatness of her dress, and preserved all her old attachment to literature. In 1746, after she had been six years blind, she published a translation from the French of La Bleterie's 'Life of the Emperor Julian.' Her father having some

time after this met with Dr. Johnson, told him his story, and, in mentioning his daughter, gave so interesting an account of her, that the Doctor expressed himself desirous of making her acquaintance, and eventually invited her to reside in his house as a companion to his wife. Mrs. Johnson died soon after; but Miss Williams continued to reside with the Doctor till her death, in 1783, at the age of 77. In 1752 an attempt was made to restore her sight by the operation of couching, but without success. We find her father publishing, three years later, an account of his method for discovering the longitude; and about the same time Garrick gave the daughter a benefit at Drury Lane, which produced her two hundred pounds. Miss Williams also appeared again as an authoress in 1766, when she published a volume, entitled 'Miscellanies in Prose and Verse,' written partly by herself and partly by several of her friends.

One of the most ingenious and original works ever written upon the habits and natural history of insects is the 'Recherches sur les Abeilles' of M. Huber of Geneva, who had been reduced to a state of complete blindness by *gutta serena* at the age of seventeen. He was assisted in his observations by his wife, an admirable woman, who made it the business of her life to contrive the means of alleviating her husband's misfortune, and for whom, indeed, it has been said, he was indebted chiefly to his blindness; since, although an attachment had existed between them previously, the lady's friends were so much opposed to the match that she would probably have been induced to listen to the addresses of another suitor, had not Huber's helpless condition awakened a sympathy she could not resist, and determined her, at all hazards, to unite herself to him. Madame Ducrest, who, in her Memoirs of the Empress Josephine, relates this anecdote, knew M. Huber and his wife; and nothing, she assures us, could exceed either the unwearied attention of the latter to

every wish and feeling of her husband, or the happiness which, notwithstanding his blindness, he seemed in consequence to enjoy. During the war, we are told, Madame Huber used to put her husband in possession of the movements of the armies by arranging squadrons of pins on a map, in such a manner as to represent the different bodies of troops. A method was also invented by which he was enabled to write; and his wife used to make plans of the towns they inhabited, in relief, for him to study by the touch. In short, so many ways did her affection find of gladdening his darkened existence, that he was wont to declare he should be miserable were he to cease to be blind. "I should not know," said he, "to what extent a person in my situation could be beloved; besides, to me my wife is always young, fresh, and pretty, which is no light matter."*

* If it were our object to illustrate merely how wonderfully large an amount of acquaintance and communication with surrounding objects may be attained even under the all but complete deprivation of the ordinary inlets for knowledge, we might refer to several other remarkable examples, such as those of David Gilbert Tait, related by Dr. Hibbert in his *Description of the Shetland Islands*, of James Mitchell, first brought forward by Professor Dugald Stewart (and of which probably the fullest and latest account is to be found in Sir William Hamilton's edition of Mr. Stewart's *Collected Works*, vol. iv. pp. 300-370; *Edin.* 1854), and of Laura Bridgman, the most interesting of all, which has been made familiar to us by Mr. Dickens, the late Mr. Buckingham, and other recent travellers in the United States of America. We might refer also to the many curious details given in the little volume entitled *The Lost Senses* by the late Dr. Kitto, himself a remarkable instance of eminent attainments in literature and skill in writing, acquired and exercised under disadvantages of which the complete extinction of the sense of hearing might almost be said to have been the least. See, in addition to his own account in *The Lost Senses*, his *Life*, lately published by Dr. Ryland.

CHAPTER XIX.

MR. PRESCOTT; M. AUGUSTIN THIERRY; M. MARY-LAFON.

It might be thought that, of all literary performances, those of the historian, with his labours of research and continual reference to and comparison of documents, would be the most impracticable for one not having the free use of his eyes. There is no kind of writing which it is so impossible to spin merely out of the brain as history. Even the exactest and best-stored memory will often find itself at fault in the minute knowledge required for the full exposition of the transactions of a distant age, or indeed of any considerable series of past events. Yet, formidable as the difficulty is, it has been in several instances both coped with and overcome. We have a History of Britain, coming down to the Norman Conquest, and extending to six books, by Milton, which seems to have been at least in part written after he became blind, though probably it was the loss of his sight that prevented him from going on with it. But perhaps the most remarkable instances of the ardent and successful prosecution of historic studies in the most untoward and difficult circumstances of this nature are two that belong to our own day. One is that of the distinguished American writer, Mr. William Hickling Prescott. His own account of his case is in the highest degree interesting. He is stated to have been born at Salem, Massachusetts, in 1796, and to have been a student at Harvard College, where he graduated in 1814, when he met with the great misfortune of his life, an

accidental blow, that at once deprived him of the sight of one eye, and was soon followed by disease in the other. He had been intended for the bar; but that was now no more to be thought of. Instead of entering a profession, he repaired to Europe, and spent two years in travelling in England, France, and Italy; but, although his general health was improved, the most eminent oculists in London and Paris had been able to do nothing for his eyesight.* We may gather, however, from some of his own expressions, that another sense had, as usually happens, already begun to some extent to supply the place of the lost one. It would seem, too, that the power of vision had been partially restored to him when he originally planned his first literary work, his 'History of the Reign of Ferdinand and Isabella,' which he gave to the world in 1837. In the Preface to the first edition of that work he says:—"I hope I shall be acquitted of egotism, although I add a few words respecting the peculiar embarrassments I have encountered in compiling this History. Soon after my arrangements were made, early in 1826, for obtaining the necessary materials from Madrid, I was deprived of the use of my eyes for all purposes of reading and writing, and had no prospect of again recovering it. This was a serious obstacle to the prosecution of a work requiring the perusal of a large mass of authorities, in various languages, the contents of which were to be carefully collated, and transferred to my own pages, verified by minute reference. Thus shut out from one sense, I was driven to rely exclusively on another, and to make the ear do the work of the eye. With the assistance of a reader—uninitiated, it may be added, in any modern language but his own—I worked my way through several venerable Castilian quartos, until I was satisfied of the practicability of the undertaking. I next procured the services of one more competent to aid me in pursuing

* Men of the Time; p. 640.

my historical inquiries. The process was slow and irksome enough, doubtless, to both parties, at least till my ear was accommodated to foreign sounds, and an antiquated, oftentimes barbarous, phraseology, when my progress became more sensible, and I was cheered with the prospect of success. It certainly would have been a far more serious misfortune to be led thus blindfold through the pleasant paths of literature; but my track stretched, for the most part, across dreary wastes, where no beauty lurked to arrest the traveller's eye and charm his senses. After persevering in this course for some years, my eyes, by the blessing of Providence, recovered sufficient strength to allow me to use them, with tolerable freedom, in the prosecution of my labours, and in the revision of all previously written. I hope I shall not be misunderstood, as stating these circumstances to deprecate the severity of criticism, since I am inclined to think the greater circumspection I have been compelled to use has left me, on the whole, less exposed to inaccuracies than I should have been in the ordinary mode of composition. But, as I reflect on the many sober hours I have passed in wading through black-letter tomes, and through manuscripts whose doubtful orthography and defiance of all punctuation were so many stumbling-blocks to my amanuensis, it calls up a scene of whimsical distresses, not usually encountered, on which the good-natured reader may, perhaps, allow I have some right, now that I have got the better of them, to dwell with satisfaction." In a note he quotes what Johnson says of Milton's work on English History attempted in similar circumstances:—"To compile a history from various authors, when they can only be consulted by other eyes, is not easy, nor possible but with more skilful and attentive help than can be commonly obtained;" and adds, "This remark of the great critic, which first engaged my attention in the midst of my embarrassments, although discouraging at

first, in the end stimulated the desire to overcome them."

In the Preface to the first edition of 'The Conquest of Mexico,' which he produced in 1843, or six years later, Mr. Prescott informs us, that, owing to the state of his eyes, he had in the composition of that work been obliged to use a writing-case made for the blind, which does not permit the writer to see his own manuscript; nor had he ever corrected, or even read, his own original draught. But it is in the original Preface to his third work, 'The Conquest of Peru,' dated four years later, or in 1847, that he enters into the fullest details. "While at the University," he there says, "I received an injury in one of my eyes, which deprived me of the sight of it. The other soon after was attacked by inflammation so severely that for some time I lost the sight of that also; and, though it was subsequently restored, the organ was so much disordered as to remain permanently debilitated; while, twice in my life, I have been deprived of the use of it for all purposes of reading and writing for several years together. It was during one of these periods that I received from Madrid the materials for the 'History of Ferdinand and Isabella;' and, in my disabled condition, with my transatlantic treasures lying around me, I was like one pining from hunger in the midst of abundance. In this state, I resolved to make the ear, if possible, do the work of the eye. I procured the services of a secretary, who read to me the various authorities; and in time I became so far familiar with the sounds of the different foreign languages (to some of which, indeed, I had been previously accustomed by a residence abroad), that I could comprehend his reading without much difficulty. As the reading proceeded, I dictated copious notes; and, when these had swelled to a considerable amount, they were read to me repeatedly, till I had mastered their contents sufficiently for the purposes of composition. The same notes

furnished an easy means of reference to sustain the text. Still another difficulty occurred in the mechanical labour of writing, which I found a severe trial to the eye. This was remedied by means of a writing-case, such as is used by the blind, which enabled me to commit my thoughts to paper without the aid of sight, serving me equally well in the dark as in the light. The characters thus formed made a near approach to hieroglyphics but my secretary became expert in the art of deciphering, and a fair copy—with a liberal allowance for unavoidable blunders—was transcribed for the use of the printer." He has described the process, he says, with the more minuteness, as some curiosity had been repeatedly expressed in reference to his *modus operandi* under his privations, and the knowledge of it might be of some assistance to others in similar circumstances.

"Though I was encouraged by the sensible progress of my work," the narrative goes on, "it was necessarily slow. But in time the tendency to inflammation diminished, and the strength of the eye was confirmed more and more. It was at length so far restored, that I could read for several hours of the day, though my labours in that way necessarily terminated with the daylight. Nor could I ever dispense with the services of a secretary, or with the writing-case; for, contrary to the usual experience, I have found writing a severer trial to the eye than reading—a remark, however, which does not apply to the reading of manuscript; and, to enable myself, therefore, to revise my composition more carefully, I caused a copy of the 'History of Ferdinand and Isabella' to be printed for my own inspection before it was sent to the press for publication. Such as I have described was the improved state of my health during the preparation of the 'Conquest of Mexico;' and, satisfied with being raised so nearly to a level with the rest of my species, I scarcely envied the superior good fortune of those who could prolong their studies into the

evening and the later hours of the night. But a change has again taken place during the last two years. The sight of my eye has become gradually dimmed, while the sensibility of the nerve has been so far increased that for several weeks of the last year I have not opened a volume, and through the whole time I have not had the use of it, on an average, for more than an hour a day. Nor can I cheer myself with the delusive expectation, that, impaired as the organ has become, from having been tasked probably beyond its strength, it can ever renew its youth, or be of much service to me hereafter in my literary researches. Whether I shall have the heart to enter, as I had proposed, on a new and more extensive field of historical labour, with these impediments, I cannot say. Perhaps long habit, and a natural desire to follow up the career which I have so long pursued, may make this, in a manner, necessary, as my past experience has already proved that it is practicable."

The courageous and yet gentle spirit of all this is as medicinal as it is beautiful. Mr. Prescott, who still pursues with admirable perseverance his literary labours, and has lately brought out the first part of a new work, his 'History of the Reign of Philip the Second,' concludes by disclaiming the credit of having surmounted the incalculable obstacles which beset the task of historical writing by one absolutely blind. The difficulties he has had to contend with, he modestly declares, have been very far inferior. But even absolute blindness, as he observes, has been triumphed over by the eminent French historian AUGUSTIN THIERRY, the author of the 'Conquest of England by the Normans.' Thierry, undoubtedly one of the first of modern narrators, whatever may be thought of some of his peculiar views, has died within the last year. His case has also been fully related by himself in a manly, uncomplaining way, which is extremely touching, in what he entitles 'A History of his Historical Works and Theories.' He

was a native of Blois, and was born in 1795. For ten years of his early manhood, from 1817 to 1827, he was permitted, he gratefully sets out by stating, to pursue without interruption the course of his studies. It was in that period that he produced, among other works, his 'History of the Norman Conquest.' When it was at last published, in the spring of 1825, after four years and a half of unceasing toil, its success, he says, surpassed his hopes; "but," he adds, "this joy, great as it was, had a sad drawback; my eyes had worn themselves out in work; I had partly lost my sight. My task ended, I listened, but too late, perhaps, to the advice to take some repose; the state of matters was urgent, for I had become perfectly incapable of reading or writing. My eyesight continued to decay, notwithstanding the use of the strongest remedies; and, as a last medical prescription, I was ordered to travel." He went first to Switzerland, and then to Provence, where an intimate friend, who had long been the companion of his studies, joined him. "Condemned to idleness," Thierry proceeds, "I followed from city to city my laborious travelling companion, and not without envy saw him scrutinize all the relics of the past, searching archives and libraries," to give the last finish to a work upon which he was engaged. For himself, nevertheless, his compulsory idleness soon became intolerable. On his return to Paris, after a few months, he at once resumed his old studies, and, almost blind as he was, began again to follow with as much zeal as ever what he considered to be his destined course of work. The necessity of reading, not with his own, but with another's eyes, and of dictating instead of writing, did not alarm him. Then he tells of various historical schemes in which he engaged. Among others was a work which he undertook to write in conjunction with his younger brother, Amédée Thierry, who still lives, and has also distinguished himself by his historical compositions. "I experienced

heartfelt pleasure," he says, "at the idea of this fraternal association. . . . My brother's portion of the work has seen the light, and has made great way in the literary world; mine remains uncompleted. I had entered with ardour into a series of researches quite new to me; had explored the collection of Byzantine historians for the history of the Goths, Huns, Vandals, and other nations that took part in the dismemberment of the Empire; when I found myself stopped by an obstacle stronger than myself. However extended these labours, my complete blindness would not have prevented my going on with them; I was resigned, as a courageous man may be, to anything; I had made friends with darkness. But other trials came: acute suffering and the decline of my strength announced a nervous disease of the most serious kind. I was obliged to confess myself conquered; and, to save, if it was still time, the last remains of my health, I gave up work, and left Paris in October 1828."

"Such," he adds, "is the history of the ten most active and laborious years of my literary life. I have never found any similar since, and have only been able to glean a few hours of work here and there amid long days of suffering." That October 1828, when he left Paris, he accounts the end of his youthful career, and the commencement of a new one, which, he says, very touchingly, he pursues "with courage, but with slow steps, much slower than formerly, though perhaps not less surely." He never, in fact, ceased to work. And in this noble strain the brave-hearted man concludes his narrative: "If, as I delight in thinking, the interest of knowledge and learning is to be counted in the number of great national interests, I have given my country all that the soldier lying mutilated on the field of battle gives her. Whatever may be the fate of my labours, this example, I hope, will not be lost. I would desire that it might serve to combat the species of moral weak-

ness which is the disease of our present generation; to bring back into the straight road of life some of those enervated souls that complain of wanting faith, that know not what to do, and seek everywhere, without finding it, an object for worship and admiration. Why say, with so much bitterness, that in the world, constituted as it is, there is no air for all lungs, no employment for all minds? Is not calm and seriousness there? and is not that a refuge, a hope, a field within the reach of all of us? With it, evil days are passed through without their weight being felt; every one can make his own destiny; every one can employ his life nobly. This is what I have done, and would do again if I had to recommence my career; I would choose that which has brought me where I am. Blind and suffering, without hope and almost without intermission, *I* may give this testimony, which from me will not appear suspicious:—there is something in the world which is better than the enjoyments of sense, better than riches, better than health itself; it is devotion to the pursuit of knowledge."*

It was in 1831, three years before he thus wrote, that Thierry acquired the chief blessing of his existence in his marriage. Madame Thierry, who was of a distinguished Breton family (her maiden name was Julia de Querangal), is the authoress of various contributions to the lighter literature of the day. A writer who has described a visit paid to Thierry says:—"Entering a small apartment on the ground-floor, furnished with simple elegance, we were received by a lady attired in black; still young, of small stature, graceful manners, and an intellectual but pensive countenance. It was Madame Augustin

* Autobiographical Preface to the *Dix Ans d'Etudes Historiques*, or *Historical Essays*, originally published in 1834. We avail ourselves of the translation given with the 'Narratives of the Merovingian Era' in 'Whittaker's Popular Library,' 8vo., London, 1844, only changing a word or two here and there.

Thierry, wife of the historian; she who has so appreciated the beauty and happiness of associating her name with a great name, her life with a life of glory and of suffering, of quitting the vain pleasures of the world to devote herself wholly to the noblest part in the drama of life that can be assigned to a woman, the part of a guardian angel, of a providence on earth, for a great soul imprisoned in a suffering body. Even had I not known that Madame Augustin Thierry is endowed with faculties that qualify her to take a direct and active part in all the labours of her husband, even had I not read the pieces, so remarkable for thought and for expression, that, proceeding from her pen, have appeared in the *Revue des Deux Mondes*, under the title of Philippe de Morvelle, the destiny that she has adopted would suffice in my eyes to manifest that hers is a noble heart, a noble spirit." They were then joined by M. Amédée Thierry, described as a man of middle height, grave in speech as in countenance, wherein might be read the profound depression of his fraternal heart. "At length," continues the account, "I heard the sound of approaching steps; a door on my right opened, and a domestic appeared, carrying on his back a man, blind, paralysed, incapable of movement. We all rose: my heart was penetrated with emotion at the sight of a being so powerful in intellect, so powerless in body. The domestic in his every motion exhibited a respectful solicitude that sensibly affected me; he seemed thoroughly to appreciate the value of him he bore. He bent gently back towards an arm-chair, in which he deposited his charge, enveloping the lower part of the motionless frame with a wrapper. This done, in an instant the scene changed . . . It was . . . the noblest blind face that can be conceived. The head was firmly set upon broad shoulders; glossy hair, of the deepest black, carefully parted over an expansive forehead, fell in curls beside each temple; beneath their arched brows opened the dark eyes; but

for the vagueness of their direction, I should have imagined them animated with sight; the nose was of the purest Greek form; the mouth, with lips fine, delicate, and expressive, seemed endowed with all the sensibility of which the eyes had been deprived; the finely turned chin had a slight dimple at its extremity; there was in the contour of the face, and in the general expression of the physiognomy, a remarkable combination of energy, subtleness, and sedate tranquillity; the tones of his voice were clear, well-poised, and distinct, though, from his feeble health, not sonorous; his bearing was in the highest degree elegant; the lower portion of the frame, as I have said, was paralysed, but the movement of the bust and of the arms was free; the hands, of which only the forefinger and thumb appeared capable of action, were gloved. . . . Conversation once fairly begun, that fine head seemed as it were radiant in the light of the intellect still finer within. I have been in the company of many persons who have the reputation of good talkers, and who do talk admirably, but I have perhaps never heard anything comparable with the colloquial language of M. Augustin Thierry, in facility, perspicuity, elegance. It is, doubtless, the habit of dictation that has given so much of style to his conversation; but, whatever the cause, it may indeed be said of him, that without any effort, without any affectation whatever, he really *speaks like a book.* One of our party, M. Ampère, was preparing to depart for the East; he had no sooner mentioned the circumstance than M. Augustin Thierry discoursed to us of the East in what, for thought and language, was an absolute poem. This blind man knows everything, recollects everything; that which he has not seen with the eyes of the body, he hath seen with the eyes of the spirit. Like Milton, he is acquainted with nearly all the European languages. One of his friends told me that he has sometimes heard him in the evening, seated in his garden, beneath the pale rays of the setting

sun, singing, with his feeble voice, a love-song in modern Greek; and at such moments, added my informant, he seemed to me finer than Homer, or than the unknown Klepht, who, himself perhaps also blind, had composed the verses he was reciting. Throughout the conversation, to which I was a silent and attentive listener, I could detect in M. Augustin Thierry not the slightest trace of selfishness, not the least self-reference. . . . At times only, when his pains are most racking, he is heard to murmur, 'Oh, that I were only blind!' "*

In no nation, it must be confessed, has the love of literature for its own sake been more frequently or more strongly exemplified than among the fellow-countrymen of M. Thierry. Perhaps a Frenchman would generally be found to work with more patient endurance, and with more untroubled self-satisfaction, in some favourite field of study, without much either of recognition or of actual product, than an Englishman would: we, with our more practical turn, are apt to become impatient, and to think that we are losing our time, when we see no tangible result of our labours; our brilliant neighbours across the Channel may be still fonder of glory than we are, but, even when neither that nor any other reward from without comes to them, they still believe that the future has in store what the present denies. And, comparatively indifferent to some things which are the first considerations with most Englishmen, more especially that ascendancy which attends on worldly wealth and what is called success in life—in which it is really not the man himself but his social position and his possessions that are regarded—a Frenchman devoted to intellectual pursuits can commonly more easily than we can do forget everything else, whether belonging to the future or to the present,

* From a Biographical Notice—whether original or translated is not stated—prefixed to the translation of Thierry's *History of the Norman Conquest* by William Hazlitt, Esq., 2 vols. 8vo., Lond. 1817.

in his enjoyment of that to which he has given his heart. Almost Thierry's very words are repeated by another writer, who has not indeed had to struggle with the same terrible calamities, but, on the other hand, has not had the same fame and applause to sustain him and cheer him on. M. Mary-Lafon, besides other works, in particular a 'Literary History of the South of France' (*Histoire du Midi*), is the author of a very ingenious, learned, and instructive volume on the Provençal tongue,—'Tableau Historique et Lit[illegible]r[illegible] de la Langue parlée dans le Midi de la Fra[illegible]t connue sous le nom de langue Romano-Provençale,'—published at Paris in 1842. Although this treatise is professedly and in its primary purpose philological, he claims for it the honour of belonging also to the grand domain of history. "The language of a people," he well observes, in the commencement of his Preface, or Introduction, "is its life, and, as it were, its soul. All that the successive generations of men leave behind them on the earth perishes or is effaced; language alone survives; and when the tomb has consumed even to the ashes of those generations, when there remains of their passage here below nothing save ruins and doubtful traces, the tongue which they spoke, for ever intact, and also for ever young, still preserves to us the immortal breath of their spirit. It appears to me that philologists have seldom comprehended all that the subject of their labours involves of the highest philosophy. In my estimation, there is none more beautiful, or that is better suited to suffice an intelligent ambition. To remount to the origin of some language which formerly expressed the whole social condition of some portion of the great human family, to follow it through its different ages, through its successive developments, through its apogee, its decline, and in many cases its fall or its transformation, this is of all historical studies the one the interest belonging to which seems to me the

most real and the most continuous." But M. Mary-Lafon's resolute and enthusiastic labours had been little lightened by any even of those honorary distinctions which had fallen to the lot of many of his more fortunate contemporaries. His essay on the Provençal tongue had in its original form failed to obtain more than a qualified approbation from the linguistic section of the Institute. Far from protesting, he says, against this judgment, he only regarded it as imposing on him the obligation of revising his work, and making it as much more perfect as he could. In the new form to which he thus brought it, it was at last *crowned*, as is the phrase, by the Institute, on the 5th of May 1841. There is something very touching, but at the same time very inspiring too, in the terms in which he speaks of this achievement of what had been for so long his highest ambition: "At length the Institute has been kind enough to encourage my labours by awarding to me one of its honourable recompenses: at the end of twelve years of studies silently pursued from day to day, here is the first fruit that I have seen ripen. My toilsome researches have borne away with them the brightest days of my youth: the dreams of ambition, of fortune, of fame. wearied of seeing me continually in the noiseless halls of the libraries, have all vanished away. On my forehead, denuded by night-work, the white hairs announce to me that old age is already come before its time. When I return to the ancient dwelling of my mother, I shall find that many of the fields which I remember to have seen in my childhood growing yellow with such plenteous harvests, and many of the meadows in those days so green, have passed into other hands while I was exploring the vast necropolises of the past. Very well! although study has taken from me my youth, destroyed my health, and narrowed the horizon of my ancestral patrimony, although in digging the historic soil vigorously and conscientiously I have

come upon nothing for myself but a modest medal, I am happier and prouder of my losses and of my labours than others of their millions and their honours, and if I were about to recommence this existence, ungrateful and toilsome as it has been, I should embrace it, as I have done for these twelve years, with a tranquil heart and with shut eyes" (le cœur tranquille et les yeux fermés),—that is, apparently, with eyes closed against whatever was discouraging and repulsive in such a course of life, although the expression might almost seem to be selected not without some thought of Augustin Thierry and his actual blindness.

CHAPTER XX.

ACCOUNT OF JAMES BRINDLEY; CANALS. OTHER EXAMPLES OF SELF-TAUGHT MECHANICIANS:—RANNEQUIN; ZABAGLIA; FERRACINO; HARRISON.

JAMES BRINDLEY, the celebrated engineer, appears to have been entirely self-taught in even the rudiments of mechanical science, although, unfortunately, we are not in possession of any very minute details of the manner in which his powerful genius first found its way to the knowledge of those laws of nature of which it afterwards made so many admirable applications. He was born at Tunsted, in the parish of Wormhill, Derbyshire, in the year 1716; and all we know of the first seventeen years of his life is, that, his father having reduced himself to extreme poverty by his dissipated habits, he was allowed to grow up almost totally uneducated, and from the time he was able to do anything, was employed in the ordinary descriptions of country labour. To the end of his life this great genius was barely able to read on any very pressing occasion: for, generally speaking, he would no more have thought of looking into a book for any information he wanted than of seeking for it in the heart of a millstone: and his knowledge of the art of writing hardly extended farther than the accomplishment of signing his name. It is probable, that as he grew towards manhood he began to feel himself created for higher things than driving a cart or following a plough; and we may even venture to conjecture that the particular bias of his genius towards mechanical invention had already disclosed itself, when, at the age of seventeen, he bound himself apprentice to a person of

the name of Bennet, a millwright, residing at Macclesfield, which was but a few miles from his native place. At all events, it is certain that he almost immediately displayed a wonderful natural aptitude for the profession he had chosen. "In the early part of his apprenticeship," says the writer of his life in the *Biographia Britannica*, who was supplied with the materials of his article by Mr. Henshall, Brindley's brother-in-law, "he was frequently left by himself for whole weeks together, to execute works concerning which his master had given him no previous instructions. These works, therefore, he finished, in his own way; and Mr. Bennet was often astonished at the improvements his apprentice from time to time introduced into the millwright business, and earnestly questioned him from whom he had gained his knowledge. He had not been long at the trade, before the millers, wherever he had been employed, always chose him again in preference to the master, or any other workman; and before the expiration of his servitude, at which time Mr. Bennet, who was advanced in years, grew unable to work, Mr. Brindley, by his ingenuity and application, kept up the business with credit, and even supported the old man and his family in a comfortable manner."

His master, indeed, from all that we hear of him, does not appear to have been very capable of teaching him much of anything; and Brindley seems to have been left to pick up his knowledge of the business in the best way he could, by his own observation and sagacity. Bennet, having been employed on one occasion, we are told, to build a paper-mill, a machine which he had never seen in his life, took a journey to a distant part of the country expressly for the purpose of inspecting one which might serve him for a model. However, he had made his observations, it would seem, to very little purpose; for, having returned home and fallen to work, he could make nothing of the business at all, and

was only bewildering himself, when a stranger, who understood something of such matters, happening one day to see what he was about, felt no scruple in remarking in the neighbourhood that the man was only throwing away his employer's money. The reports which in consequence got abroad soon reached the ears of Brindley, who had been employed on the machinery under the directions of his master. Having probably



JAMES BRINDLEY.

of himself begun ere this to suspect that all was not right, his suspicions were only confirmed by what he heard; but, aware how unlikely it was that his master would be able to explain matters, or even assist him in getting out of his difficulties, he did not apply to him. On the contrary, he said nothing to any one; but, waiting till the work of the week was over, set out by himself one Saturday evening to see the same mill which his master had already visited. He accomplished his object, and was back to his work by Monday morning,

having travelled the whole journey of fifty miles on foot. Perfectly master now of the construction of the mill, he found no difficulty in going on with his undertaking; and completed the machine, indeed, not only so as perfectly to satisfy the proprietor, but with several improvements on his model of his own contrivance.

After remaining some years with Bennet, he set up in business for himself; and with the reputation he had already acquired, his entire devotion to his profession, and the wonderful talent for mechanical invention, of which almost every piece of machinery he constructed gave evidence, he could not fail to succeed. But for some time, of course, he was known only in the neighbourhood of the place where he lived. His connexions, however, gradually became more and more extensive; and at length he began to undertake engineering in all its branches. A performance by which he particularly distinguished himself was the erection, in 1752, of a water-engine for draining a coal-mine at Clifton in Lancashire. The great difficulty in this case was to obtain a supply of water for working the engine; Brindley brought the water through a tunnel six hundred yards in length, cut in the solid rock. It would appear, however, that his genius was not yet quite appreciated as it deserved to be, even by those who employed him. He was in some sort an intruder into his present profession, for which he had not been regularly educated; and it was natural enough that, before his great powers had had an opportunity of showing themselves, and commanding the universal admiration of those best qualified to judge of them, he should have been conceived by many to be rather a merely clever workman in a few particular departments, than one who could be safely entrusted with the entire management and superintendence of a complicated design. In 1755 it was determined to erect a new silk-

mill at Congleton, in Cheshire; and another person having been appointed to preside over the execution of the work, and to arrange the more intricate combinations, Brindley was engaged to fabricate the larger wheels and other coarser parts of the apparatus. It soon became manifest, however, that the superintendent was unfit for his office; and the proprietors were obliged to apply to Brindley to remedy several blunders into which he had fallen, and give his advice as to how the work should be proceeded in. Still they did not deem it proper to dismiss their incapable projector; but, the pressing difficulty overcome, would have had him by whose ingenuity they had been enabled to get over it to return to his subordinate place, and work under the directions of the same superior. This Brindley positively refused to do. He told them he was ready, if they would merely let him know what they wished the machine to perform, to apply his best endeavours to make it answer that purpose, and that he had no doubt he should succeed; but he would not submit to be superintended by a person whom he had discovered to be quite ignorant of the business he professed. This at once brought about a proper arrangement of matters. Brindley's services could not be dispensed with; those of the pretender who had been set over him might be so, without much disadvantage. The entire management of the work, therefore, was forthwith confided to the former, who completed it with his usual ability, in a superior manner. He not only made important improvements, indeed, in many parts of the machine itself, but even in the mode of preparing the separate pieces of which it was to be composed. His ever-active genius was constantly displaying itself by the invention of the most beautiful and economical simplifications. One of these was a method which he contrived for cutting all his tooth and pinion wheels by machinery, instead of having them done by the hand, as they

always till then had been. This invention enabled him to finish as much of that sort of work in one day as had formerly been accomplished in fourteen.

But the character of this man's mind was comprehensiveness and grandeur of conception; and he had not yet found any adequate field for the display of his vast ideas and almost inexhaustible powers of execution. Happily this was at last afforded him, by the commencement of a series of undertakings in his native country, which hold a very high rank among the achievements of modern enterprise and mechanical skill; and which were destined, within no long period, to change the whole aspect of the internal commerce of the island.

Artificial water-roads, or *canals*, were well known to the ancients. Without transcribing all the learning that has been collected upon the subject, and may be found in any of the common treatises, we may merely state that the Egyptians had early effected a junction by this means between the Red Sea and the Mediterranean; that nearly five centuries before the commencement of our era, Xerxes, when about to invade Greece, cut a ship canal a mile and a half long, across the Isthmus of Mount Athos; and that both the Greeks and the Romans attempted to cut one across the Isthmus of Corinth. It has been supposed by some that one was actually cut by the Romans in Britain from the neighbourhood of Peterborough to that of Lincoln, some traces of which have been asserted to be still discernible. Canal navigation is also of considerable antiquity in China. The greatest work of this description in the world is the Imperial Canal of that country, which is two hundred feet broad, and, commencing at Pekin, extends southward, to the distance of about nine hundred miles. It is supposed to have been constructed about eight centuries ago; but there are a great many smaller works of the same kind in the country, many of which are undoubtedly much older. The Chinese are unac-

quainted, as were also the ancients, with the contrivance called a lock, by means of which different levels are connected in many of our modern European canals, and which, as probably all our readers know, is merely a small intermediate space, into which the boat is admitted by the opening of one floodgate, and from which it is let out by the opening of another after the former has been shut;—the purpose being thus attained of floating it onwards, without any greater waste of water than the quantity required to alter the level of the enclosed space. When locks are not employed, the canal must be either of uniform level throughout, or it must consist of a succession of completely separated portions of water-way, from one to the other of which the boat is carried on an inclined plane, or by some other mechanical contrivance.

Canals have likewise been long in use in several of the countries of modern Europe, particularly in the Netherlands and in France. In the former, indeed, they used to constitute the principal means of communication between one place and another, whether for commercial or other purposes. In France, the canals of Burgundy, of Briare, of Orleans, and of Languedoc, all contribute important facilities to the commerce of the country. That of Languedoc, which unites the Mediterranean to the Atlantic, is sixty feet broad and one hundred and fifty miles in length. It was finished in 1681; having employed twelve thousand men for fifteen years, and cost twelve hundred thousand pounds sterling.

It is remarkable that, with these examples before her, England was so late in availing herself of the advantages of canal navigation. The subject, however, had not been altogether unthought of. As early as the reign of Charles the Second a scheme was in agitation for cutting a canal (which has since been made) between the Forth and the Clyde in the northern part of the kingdom; but the idea was abandoned, from the diffi-

culty of procuring the requisite funds. A very general impression, too, seems to have been felt, in the earlier part of the last century, as to the desirableness of effecting a canal navigation between the central English counties and either the metropolis or the eastern coast.

The first modern canal actually executed in England was not begun till the year 1755, and was the result of a sudden thought on the part of its undertakers, nothing of the kind having been contemplated by them when they first engaged in the operations which led to it. They had obtained an act of parliament for rendering navigable the Sankey brook, in Lancashire, which flows into the river Mersey, from the neighbourhood of the now flourishing town of St. Helen's, through a district abounding in valuable beds of coal. Upon surveying the ground, however, with more care, it was considered better to leave the natural course of the stream altogether, and to carry the intended navigation along a new line; in other words to cut a canal. The work was accordingly commenced; and, the powers of the projectors having been enlarged by a second act of parliament, the canal was eventually extended to the length of about twelve miles. It turned out both a highly successful speculation for the proprietors, and a valuable public accommodation.

It is probable that the Sankey Canal, although it did not give birth to the first idea of the great work we are now about to describe, had at least the honour of prompting the first decided step towards its execution. Francis, Duke of Bridgewater, who, while yet much under age, had succeeded, in the year 1745, by the death of his elder brother, to the family estates, and the title, which had been first borne by his father, had a property at Worsley, about seven miles west from Manchester, extremely rich in coal-mines, which, however, had hitherto been unproductive, owing to the want of any sufficiently economical means of transport.

The object of supplying this defect had for some time strongly engaged the attention of the young Duke, as it had indeed done that of his father; who, in the year 1732, had obtained an act of parliament enabling him to cut a canal to Manchester, but had been deterred from commencing the work, both by the immense pecuniary outlay which it would have demanded, and the formidable natural difficulties against which at that time there was probably no engineer in the country able to contend. When the idea, however, was now revived, the extraordinary mechanical genius of Brindley had already acquired for him an extensive reputation, and he was applied to by the Duke to survey the ground through which the proposed canal would have to be carried, and to make his report upon the practicability of the scheme. New as he was to this species of engineering, Brindley, confident in his own powers, at once undertook to make the desired examination, and, having finished it, expressed his conviction that the ground presented no difficulties which might not be surmounted. On receiving this assurance, the Duke at once determined upon the undertaking; and, an act of parliament having been obtained in 1758, the powers of which were considerably extended by succeeding acts, the formation of the canal was begun that year.

From the first the Duke resolved that, without regard to expense, every part of the work should be executed in the most perfect manner. One of the chief difficulties to be surmounted was that of procuring a sufficient supply of water; and, therefore, that there might be as little of it as possible wasted, it was determined that the canal should be of uniform level throughout, and of course without locks. It had consequently to be carried in various parts of its course both under hills and over wide and deep valleys. The point, indeed, from which it took its commencement was the heart of the coal-mountain at Worsley. Here a large basin was formed,

in the first place, from which a tunnel of three quarters of a mile in length had to be cut through the hill. We may just mention, in passing, that the subterraneous course of the water beyond this basin was subsequently extended in various directions for about thirty miles. After emerging from underground, the line of the canal was carried forward, as we have stated, by the intrepid engineer, on the same undeviating level; every obstacle that presented itself being triumphed over by his admirable ingenuity, which the difficulties he had to encounter seemed only to render more fertile in happy inventions. Nor did his comprehensive mind ever neglect even the most subordinate departments of the enterprise. The operations of the workmen were everywhere facilitated by new machines of his contrivance: and whatever could contribute to the economy with which the work was carried on was attended to only less anxiously than what was deemed essential to its completeness. Thus, for example, the materials excavated from one place were employed to form the necessary embankments at another, to which they were conveyed in boats, having bottoms which opened and at once deposited the load in the place where it was wanted. No part of his task, indeed, seemed to meet this great engineer unprepared. He made no blunders, and never had either to undo anything or to wish it undone, on the contrary, when any new difficulty occurred, it appeared almost as if he had been all along providing for it—as if his other operations had been directed from the first by his anticipation of the one now about to be undertaken.

In order to bring the canal to Manchester it was necessary to carry it across the Irwell. That river is, and was then, navigable for a considerable way above the place at which the canal comes up to it; and this circumstance interposed an additional difficulty, as, of course, in establishing the one navigation, it was indispensable

that the other should not be destroyed or interfered with. But nothing could dismay the daring genius of Brindley. Thinking it, however, due to his noble employer to give him the most satisfying evidence in his power of the practicability of his design, he requested that another engineer might be called in to give his opinion before its execution should be determined on. This person Brindley carried to the spot where he proposed to rear his aqueduct, and endeavoured to explain to him how he meant to carry on the work. But the other only shook his head, and remarked, that "he had often heard of castles in the air, but never before was shown where any of them were to be erected." The Duke, nevertheless, retained his confidence in his own engineer, and it was resolved that the work should proceed. The erection of the aqueduct, accordingly, was begun in September, 1760, and on the 17th of July following the first boat passed over it, the whole structure forming a bridge of above two hundred yards in length, supported upon three arches, of which the centre one rose nearly forty feet above the surface of the river; on which might be frequently beheld a vessel passing along, while another, with all its masts and sails standing, was holding its undisturbed way directly under its keel.

In 1762 an act of parliament was, after much opposition, obtained by the Duke, for extending a branch of his canal to Liverpool, and so uniting that town, by this method of communication, to Manchester. This portion of the canal, which is more than twenty-nine miles in length, is, like the former, without locks, and is carried by an aqueduct over the Mersey, the arch of which, however, is less lofty than that of the one over the Irwell, as the river is not navigable at the place where it crosses. It passes also over several valleys of considerable width and depth. Before this, the usual price of the carriage of goods between Liverpool and Man-

chester had been twelve shillings per ton by water, and forty shillings by land; they were now conveyed by the canal, at a charge of six shillings per ton, and with all the regularity of land carriage.

In noticing this great work, we ought not to overlook the admirable manner in which the enterprising nobleman, at whose expense it was undertaken, performed his part in carrying it on. It was his determination, as we have already stated, from the first, to spare no expense on its completion. Accordingly, he devoted to it during the time of its progress nearly the whole of his revenues, denying himself, all the while, even the ordinary accommodations of his rank, and living on an income of four hundred a-year. He had even great commercial difficulties to contend with in the prosecution of his schemes, being at one time unable to raise 500*l.* on his bond on the Royal Exchange; and it was a chief business of his agent, Mr. Gilbert, to ride up and down the country to raise money on his Grace's promissory notes. It is true that he was afterwards amply repaid for this outlay and temporary sacrifice; but the compensation that eventually accrued to him he never might have lived to enjoy; and at all events he acted as none but extraordinary men do, in thus voluntarily relinquishing the present for the future, and preferring to any dissipation of his wealth on passing and merely personal objects the creation of this magnificent monument of lasting public usefulness.* Nor was it only in

* Francis, Duke of Bridgewater, died in 1803, at the age of 67, when the ducal title became extinct, and the earldom passed to his cousin, General Egerton. The income arising from his canal property alone was understood to be, at the time of his death, between 50,000*l.* and 80,000*l.* per annum—a large revenue, but not amounting, although we add to it the rents of his other estates, to anything like that assigned to this nobleman, by the writer of his life in the *Biographie Universelle*, who informs us, that the income-tax which he paid every year amounted alone to 110,000*l.* sterling! "La somme qu'il payait, chaque année, pour sa portion dans la taxe du revenue

the liberality of his expenditure that the Duke approved himself a patron worthy of Brindley. He supported his engineer throughout the undertaking with unflinching spirit, in the face of no little outcry and ridicule, to which the imagined extravagance or impracticability of many of his plans exposed him—and that even from those who were generally accounted the most scientific judges of such matters. The success with which these plans were carried into execution is probably in no slight degree to be attributed to the perfect confidence with which their author was thus enabled to proceed.

We have entered at the greater length into the history of this undertaking, both because it was the first of a succession of works of the same description, in which the great engineer of whom we are speaking displayed the unrivalled hardihood, originality, and fertility of his genius, and because from it is also to be dated the commencement of that extended canal navigation, which came to form so important a part of our means of internal communication in this country. While the Bridgewater canal was yet in progress, Mr. Brindley was engaged by Lord Gower,* and the other principal landed proprietors of Staffordshire, to survey a line for another canal, which it was proposed should pass through that county, and, by uniting the Trent and the Mersey, open for it a communication by water with both the east and west coast. Having reported favourably of the practicability of this design, and an act of parliament having been obtained in 1765 for carrying it into effect

(*income-tax*) s'élevait seule à 110,000 livres st." The fact is, that in the returns which he made under the act imposing the tax in question the Duke estimated his income at that amount. He left at his death, besides his large property in land, about 600,000*l.* in the funds.

* Lord Gower married a sister of the Duke of Bridgewater; and his Grace left his canal property in Lancashire to his nephew, the late Duke of Sutherland (formerly Marquess of Stafford).

he was appointed to conduct the work. The scheme was one which had been often thought of; but the supposed impossibility of getting across the elevated central region which has been called the Backbone of England, had hitherto prevented any attempt to execute it. This was, however, precisely such an obstacle as Brindley delighted to cope with; and he at once overcame it, by carrying a tunnel through Harecastle Hill, of two thousand eight hundred and eighty yards in length, at a depth, in some places, of more than two hundred feet below the surface of the earth. This was only one of five tunnels excavated in different parts of the canal, which extends to the length of ninety-three miles, having seventy-six locks, and passing in its course over many aqueducts. Brindley, however, did not live to execute the whole of this great work, which was finished by his brother-in-law, Mr. Henshall, in 1777, about eleven years after its commencement.

During the time that these operations, so new in this country, were in progress, the curious crowded to witness them from all quarters, and the grandeur of many of Brindley's plans seems to have made a deep impression upon even his unscientific visitors. A letter which appeared in the newspapers, while he was engaged with the Trent and Mersey Canal, gives us a lively picture of the astonishment with which the multitude viewed what he was about. The writer, it will be observed, alludes particularly to the Harecastle Tunnel, the chief difficulty in excavating which arose from the nature of the soil it had to be cut through. "Gentlemen come to view our eighth wonder of the world, the subterranean navigation which is cutting by the great Mr. Brindley, who handles rocks as easily as you would plum-pies, and makes the four elements subservient to his will. He is as plain a looking man as one of the boors of the Peak, or one of his own carters; but when he speaks, all ears listen, and every

mind is filled with wonder at the things he pronounces to be practicable. He has cut a mile through bogs, which he binds up, embanking them with stones, which he gets out of other parts of the navigation, besides about a quarter of a mile into the hill Yelden, on the side of which he has a pump, which is worked by water, and a stove, the fire of which sucks through a pipe the damps that would annoy the men who are cutting towards the centre of the hill. The clay he cuts out serves for brick to arch the subterraneous part, which we heartily wish to see finished to Wilden Ferry, when we shall be able to send coals and pots to London, and to different parts of the globe."

It would occupy too much of our space to detail, however rapidly, the history of the other undertakings of this description to which the remainder of Mr. Brindley's life was devoted. The success with which the Duke of Bridgewater's enterprising plans for the improvement of his property were rewarded speedily prompted numerous other speculations of a similar description; and many canals were formed in different parts of the kingdom, in the execution or planning of almost all of which Brindley's services were employed. He himself had become quite an enthusiast in his new profession, as a little anecdote that has been often told of him may serve to show. Having been called on one occasion to give his evidence touching some professional point before a Committee of the House of Commons, he expressed himself, in the course of his examination, with so much contempt of rivers as means of internal navigation, that an honourable member was tempted to ask him for what purpose he conceived rivers to have been created; when Brindley, after hesitating a moment, replied, "To feed canals." His success as a builder of aqueducts would appear to have inspired him with almost as fervid a zeal in favour of bridges as of canals, if it be true, as has been asserted, that one of his

favourite schemes contemplated the joining of Great Britain to Ireland by a bridge of boats extending from Portpatrick to Donaghadee. This report, however, is alleged to be without foundation by the late Earl of Bridgewater, in a curious work which he published some years ago at Paris, on the subject of his predecessor's celebrated canal.

Brindley's multiplied labours and intense application rapidly wasted his strength, and shortened his life. He died at Turnhurst, in Staffordshire, on the 27th of September, 1772, in the fifty-sixth year of his age, having suffered for some years under a hectic fever, which he had never been able to get rid of. In his case, as in that of other active spirits, the soul seems to have

"O'er-inform'd its tenement of clay;"

although the actual bodily fatigue to which his many engagements subjected him must doubtless have contributed to wear him out.

No man ever lived more for his pursuit, or less for himself, than Brindley. He had no sources of enjoyment, or even of thought, except in his profession. It is related, that having once, when in London, been prevailed upon to go to the theatre, the unusual excitement so confused and agitated him as actually to unfit him for business for several days, on which account he never could be induced to repeat his visit. His total want of education, and ignorance of literature, left his genius without any other field in which to exercise itself and spend its strength than that which the pursuit of his profession afforded it. But its power, even here, would probably not have been impaired if it could have better sought relaxation in variety; on the contrary, its spring would most likely have been all the stronger for being occasionally unbent. As we have already mentioned, he was all but entirely ignorant of reading and writing.

He knew something of figures, but did not avail himself much of their assistance in performing the calculations which were frequently necessary in the prosecution of his mechanical designs. On these occasions his habit was to work the question, by a method of his own, chiefly in his head, only setting down the results at particular stages of the operation; yet his conclusions were generally correct. His vigour of conception, in regard to machinery, was so great, that, however complicated might be the machine he had to execute, he never, except sometimes to satisfy his employers, made any drawing or model of it; but, having once fixed its different parts in his mind, would construct it without any difficulty, merely from the idea of which he had thus possessed himself. When much perplexed with any problem he had to solve, his practice was to take to bed, in order to study it; and he would sometimes remain, we are told, for two or three days thus fixed in meditation to his pillow.

A much more potent agency for the same purpose has since been introduced, and the great era of inland navigation has now come to a close; but it will enable us to appreciate what our commerce owes to Brindley, if we cast our eye for a moment over the map of Great Britain, and note a few of the principal canals by which the island, after he had commenced his operations, rapidly came to be intersected in all directions. First, there is the Trent and Mersey Canal, which we have already mentioned, and which was denominated by Brindley the Grand Trunk Navigation, as, in fact, uniting one side of the kingdom to the other, and therefore especially adapted to serve, as it has since actually done, by way of stem, from which other similar lines might proceed as branches to different points. By this canal, a complete water communication was established, though by a somewhat circuitous sweep, between the great ports of Liverpool on the west coast

and Hull on the east. . A branch from it, the Staffordshire and Worcestershire Canal, was afterwards carried to the river Severn; and thus a connection was effected between the port of Bristol and the two already mentioned. This branch, being about forty-six miles long, was also executed by Brindley, and was completed in 1772. Similar communications were subsequently formed from other points on the south coast to the central counties. But the most important line of English canals is that which extends from the centre of the kingdom to the metropolis, and, by falling into the Grand Trunk Navigation, forms in fact a continued communication by water all the way from London to Liverpool. Of this line, the principal part is formed by what is called the Grand Junction Canal, which, commencing at Brentford, stretches north-west till it falls into a branch of the Oxford Canal, at Brunston, in Northamptonshire, passing at one place (Blisworth) through a tunnel three thousand and eighty yards in length, eighteen feet high, and sixteen and a half wide. The Regent and Paddington Canals have since formed communications between the Grand Junction Canal and the eastern, western, and northern parts of the metropolis. The whole length of the direct waterway thus established between Liverpool and London is about two hundred and sixty-four miles; but, if the different canals which contribute to form the line be all of them measured in their entire length, the aggregate amount of the inland navigation, in this connection alone, will extend to above one thousand four hundred miles.

The oldest canal in the northern part of the kingdom is that between the Forth and Clyde, which was executed by the celebrated Smeaton, although its plan was revised by Brindley. It commences at Grangemouth, on the Carron, at a short distance from where that river falls into the Forth, and originally terminated at Port Dundas, in the neighbourhood of Glasgow, but was

afterwards carried farther west to Dalmuir. The middle portion of this canal passes over an elevated level for about eighteen miles; and from this summit it descends by no fewer than twenty locks to the Forth, and by twenty-one to the Clyde. Afterwards a branch was extended from its north-eastern extremity along the south bank of the Forth as far as Edinburgh; so that the whole now forms an uninterrupted line of canal navigation from very near the west to the east coast of Scotland. The famous Caledonian Canal, in the north of Scotland, also unites the two opposite seas, but stretches less directly east and west than the line that has just been described. It was commenced in 1802, under the management of Mr. Telford, who conducted it throughout; and was first opened on the 23rd of October 1822. The distance between the German and the



THOMAS TELFORD.

Atlantic Oceans, measured in the direction of this canal, is two hundred and fifty miles; but of this nearly two hundred and thirty miles, consisting of friths and lakes, were already navigable. The canal itself, therefore,

which has cost about a million of pounds sterling, is only, properly speaking, about twenty miles in length. This great national work, however, has not proved of eminent utility. Indeed, had not steam navigation been fortunately discovered while it was in course of being cut, the Caledonian Canal, when finished, would probably have been almost absolutely useless.

The entire length of the canal navigation in Great Britain and Ireland is not much under three thousand miles. The whole of this was the creation of about seventy years, during which period, therefore, considerably above forty miles of canal on an average may be said to have been produced every year,—a truly extraordinary evidence of the spirit and resources of the country, which had been able to continue so large an expenditure, for so long a time, on a single object; and which, besides, had in a single year, during that period, spent almost as much money upon war as all those canals together cost for three-quarters of a century. If Brindley had never lived, we should undoubtedly have acquired much of this accommodation; for the time was ripe for its introduction, and an increasing commerce, everywhere seeking vent, could not have failed, ere long, to have struck out for itself, to a certain extent, these new facilities. But, had it not been for the example set by his adventurous genius, the progress of artificial navigation among us would probably have been timid and slow, compared to what it actually was. For a long time, in all likelihood, our only canals would have been a few small ones, cut in the more level parts of the country, like that substituted in 1755 for the Sankey Brook, the benefit of each of which would have been extremely insignificant, and confined to a very narrow neighbourhood. He did, in the very infancy of the art, what was never afterwards outdone; struggling, indeed, with such difficulties, and triumphing over them, as could be scarcely exceeded by any his successors might have to

encounter. By the boldness and success with which, in particular, he carried the Grand Trunk Navigation across the elevated ground of the midland counties, he demonstrated that there was hardly any part of the island where a canal might not be formed; and, accordingly, this very central ridge, which used to be deemed so insurmountable an obstacle to the junction of our opposite coasts, is now intersected by more than twenty canals beside the one which he first drove through the barrier. It is in the conception and accomplishment of such grand and fortunate deviations from ordinary practice that we discern the power, and confess the value, of original genius.

The case of Brindley affords us a wonderful example of what the force of natural talent will sometimes do in attaining an acquaintance with particular departments of science, in the face of almost every conceivable disadvantage—where not only all education is wanting, but even all access to books. Nor is he the only celebrated practical mechanician that might be named, whose inventive faculties have been successfully exercised without any help from literature. The French engineer, SWALM RENKIN, or RANNEQUIN, as he is more commonly called, who, in the reign of Louis XIV., constructed the famous machine of Marli for raising the water of the Seine to the gardens of Versailles, was originally only a common carpenter at Liege, where he was born about the middle of the seventeenth century, and had no means of acquiring knowledge except in the workshop and by his own reflection. A learned contemporary writer, Professor Weidler, of Wittemberg, describes him by the Greek epithet *αναλφαβητος*—*ignorant even of the alphabet.* Yet the apparatus which he erected at Versailles, and which was of extraordinary complexity, was regarded in that age as the greatest mechanical wonder in the world. It raised water from the Seine to the height of four hundred and seventy-six feet above

the level of the river. The Italian engineer, NICHOLAS ZABAGLIA, who was born at Rome in 1674, was also originally a poor working carpenter, and altogether uneducated. In this capacity he was first employed at the Vatican; and yet he was eventually appointed to preside over the building of St. Peter's, where he did not, however, confine himself to the duties of superintendence and direction, but continued to work with his own hands as before. Zabaglia was the author of many mechanical contrivances, distinguished for their simplicity and elegance. He was the contemporary of BARTHOLOMEW FERRACINO,* another self-taught mechanician of great genius. Ferracino was bred a sawyer, in which occupation he was employed while very young, and when the severe labour was almost too much for his strength. He at length, however, contrived a saw which moved by the wind, and did his work for him. After this, he invented many other ingenious machines, and acquired a distinguished reputation in various departments of practical mechanics. The great clock in the Place of St. Mark, at Venice, was of his construction. But his chief work was the bridge over the Brenta, near his native town of Bassano; it has been much celebrated. Ferracino was quite ignorant of books; and, when his friends would sometimes advise him to give his great natural powers fair play by applying himself to the regular study of the principles of mechanical science, he used to say, with a laugh, which, however, may possibly have covered some misgiving and self-reproach, that nature had been a very good teacher to him, and that he had all the book he wanted in his head. Our own countryman, the celebrated JOHN HARRISON, who, in 1767, obtained the parliamentary reward of twenty thousand pounds for the invention of his admirable chronometer, or timepiece, for ascertaining the longitude at sea, may be quoted as another remarkable example of genius in the main self-taught. He was born at Ponte-

fract, in Yorkshire, in 1623, and was bred a carpenter; yet he very early manifested a taste for mathematical science, which is said to have been first awakened by a manuscript copy of some lectures of Saunderson (the blind mathematician) that accidentally fell into his hands; and it should seem that he was not so entirely



JOHN HARRISON.

without education as to be unable to peruse and profit by them. Before he was twenty-one, he had made two wooden clocks by himself, and without having received any instructions in the art. We have, in a former chapter, mentioned the circumstance of his having been first induced to think of applying himself to the construction of marine chronometers by living for some time in sight of the sea. It was in 1728 that he first came up to London, in order to prosecute this object; but he had to devote to it the anxious labours of nearly forty years before his inventions were perfected, or their general merit fully recognized. The art of watchmaking owes several valuable improvements to Harrison;

among which may be particularly mentioned the gridiron pendulum, and the expansion balance-wheel—the one serving to equalize the movements of a clock, and the other those of a watch, under all changes of temperature—and both depending upon the unequal stretching under change of temperature of two different metals, which are so employed to form the rod of the pendulum and the circumference of the wheel that the contraction of the one exactly counterbalances the expansion of the other. Although, however, a most skilful and ingenious artist, Harrison never acquired any command or correct knowledge of his native language; and a little work which he published in his old age, in explanation of some of his ideas on the construction of time-pieces, is miserably ill-written. He died in London, in 1776, at the age of eighty-three.

Of these, and all such instances, it may safely be remarked that, far from proving the inutility of scientific acquirements, they only, while they show how far, in one particular line, natural genius can carry its possessors without cultivation, make us regret their having wanted those helps which, even in that line, would have carried them so much farther.

CHAPTER XXI.

ACQUISITION OF LANGUAGES:—MAGLIABECCHI; HILL; WILD; ARAM; PURVER; PENDRELL.

If mechanical invention does not necessarily imply much study of books, and may seem, on that account, a province of intellectual exertion fitted for persons who have not enjoyed the advantages of a regular education, as being one in which natural sagacity and ingenuity, as much as literary attainments, are requisite to insure advancement, the same thing can hardly be said of another department, in which self-taught genius has frequently made extraordinary progress; we mean the study of languages. This is the sort of knowledge, indeed, which, in common parlance, is more peculiarly called learning. Its acquisition, in the circumstances alluded to, can only be the result of a love for and familiarity with books, and of what we may call the literary habit thoroughly formed. Great linguists have, indeed, been generally devourers of books, not merely as being the grand storehouses of words—the fountains from which they draw their supplies of that knowledge to which they are especially attached,—but as constituting also an ample domain of enjoyment, of which the possession of this knowledge makes them free, far beyond other men.

There are three purposes for which languages may be studied, independently of their gratifying that general desire of information which makes both the acquirement and the possession of all knowledge delightful. Speech is the most perfect and beautiful of all the creations or products of the human mind, considered merely as an

instrument adapted to a certain use; and in this point of view it forms a peculiarly interesting and valuable study for the metaphysician, both as, from the extreme delicacy of its structure, recording with inimitable fidelity many of the nicest and most fugitive processes of thought and feeling, and recording them, at the same time, more imperishably, and more commodiously for deliberate examination, than if the impression of them had been taken in iron or in marble. One use, therefore, and a highly important one, to be made of the knowledge of languages, is the study of that intellectual mechanism by which they have been formed, and of which they present us, as it were, with the impress or picture. Another department of philosophy to which this knowledge is a key, is that relating to the early history of our race, and the origin of the different nations by whom the earth is peopled—a subject to many parts of which we have no other guide than the evidence of language, but upon which this evidence, skilfully interpreted, may often be made to throw considerable light. But the motive which most generally induces the student to seek an acquaintance with foreign or ancient tongues is, of course, that he may be able to read the books written in them, and thus obtain access to worlds of intellectual treasure, from which he would be otherwise entirely, or almost entirely, shut out. For no thorough knowledge of any foreign literature is to be acquired through translations. Of many works translations do not exist, or are not accessible when the original is; and of many there can be no adequate translation. The man whose knowledge of the literature of another age or country is confined to translations is in the situation of the untravelled reader, who may, indeed, learn something of foreign lands from the descriptions of those who have visited them; but a person familiar with the language of another people has that sort of access to their literature, which one would

have to the general knowledge of their country and their manners, who should be in possession of the talisman of eastern fiction, by which he could transport himself thither at a wish.

Perhaps the greatest reader that ever lived was the famous ANTONIO MAGLIABECCHI, of whose latinised name *Antonius Magliabecchius*, some one formed the anagram,—*Is unus bibliotheca magna—Himself a great library.* He was born at Florence in 1633, and, according to one account, commenced his career as a scholar in a very curious manner; for having, it is affirmed, been apprenticed by his parents, who were extremely poor, to a seller of pot-herbs, he used to take the greatest delight, although he could not read a word, in poring over the leaves of old books in which his master wrapped his commodities; till, having been one day observed at this sort of study by a bookseller who lived in the neighbourhood, that person offered to take him into his service. The proposal was instantly accepted by Magliabecchi, who could conceive no greater happiness than an occupation which would surround him with his beloved books. So keen, it is added, was the interest which he took in his new employment, that in two or three days he knew the place of every volume in the shop, and could find any one when asked for, more readily than his master himself. After a short time he had learned to read, and then every moment of his leisure was devoted to this new pleasure. Such is the story which Mr. Spence has told us, on the authority, as he states, of a Florentine gentleman well acquainted with Magliabecchi and his family. The Italian writer, Marmi, however, who, having been librarian to the Grand Duke of Florence, was, for many years, an intimate friend of Magliabecchi, has, in a life which he has written of him, given a different account of his early years. His mother, according to Marmi, had him instructed both in the art of design and in Latin when he was a boy, after which

she apprenticed him to a goldsmith. Whether his master was a goldsmith or a bookseller, it is agreed on all hands that, during the time of his apprenticeship, Magliabecchi had already begun those extraordinary acquisitions which made him at length the most learned man of his age. The fame of his ardour for study, and extensive knowledge, at length procured him the notice of some of the Florentine literati; and, having been introduced at court, he was appointed by the Grand Duke keeper of one of his libraries. In this situation he remained till his death, in 1714, at the age of eighty-one.

Many wonderful stories are told of the extensive reading and retentive memory of Magliabecchi. It has been said, among other things, that a manuscript of a work of some length, which, at the request of the author, he had read, having been lost, was actually recovered by being taken down from his recitation. This, however, as Mr. Spence observes, is doubtless a very wild exaggeration; it amounts, evidently, if true, to nothing less than a proof that Magliabecchi's memory was such as to retain everything, without exception, to which his attention was ever called. But of what he read really worth recollecting, he undoubtedly recollected a great deal. He was, indeed, a library of reference upon all sorts of subjects for the other literary men of his time, who were wont to apply to him whenever they wanted to know what had been already written upon any matter which they were engaged in studying or discussing. Two volumes of the 'Letters of the Learned' to Magliabecchi were published at Florence in 1745, and they form but a small part of those that were addressed to him during his long life, from every part of Europe, by persons who wished to avail themselves of the aid of his universal learning. Upon almost any subject, we are told, on which he was consulted, he could not only state what any particular author had said of it, but in many cases could quote

the very words employed, naming, at the same time, the volume, the page, and the column in which they were to be found. Authors and printers were generally wont to send him all the works which they published—a sure method, if they contained anything valuable, of getting them, as it were, advertised over the world of letters, since literary men were everywhere in communication with Magliabecchi, and he would not fail, if the new book deserved his recommendation, to mention its merits to such of his correspondents as it was likely to interest. He had a sort of short-hand method of reading, by which he contrived to get over a great many volumes in little time, and which every person will be in some degree able to understand who has been much in the habit of looking over new books. His way, we are told, was to look first to the title-page, then to dip into the preface, dedication, or other preliminary matter, and, finally, to go over the divisions or chapters; after which, being so completely in possession as he was of all that former writers had said upon the subject treated of, he was very nearly as much master of the contents of the new work, as if he had perused it in the ordinary fashion. Of course, if this cursory inspection gave him reason to believe that there was in any part of it matter really new and important, he would examine it more particularly before he laid it down. At all events, it is certain that, although thus expeditiously acquired, his knowledge was the very reverse of superficial. The reverence with which he was regarded by the greatest scholars of his time proves this. The dexterity, if we may so call it, which he attained in the art of acquiring such knowledge as can be communicated by books was in great part the result of the exclusiveness with which he devoted his life to that object. He might be said literally to live in his library; for in fact he both slept and took his meals in the midst of his books. Three

hard eggs and a draught of water formed his common repast; and a sort of cradle, which he had made for the purpose, served him both for his elbow-chair during the day, and for a bed at night. He never travelled more than a few miles from Florence; but all the great libraries in the world were nevertheless nearly as well known to him as his own. "One day," says Mr. Spence, "the Grand Duke sent for him, after he was his librarian, to ask him whether he could get for him a book which was particularly scarce. 'No, Sir,' answered Magliabecchi, 'it is impossible, for there is but one in the world; that is in the Grand Seignor's library at Constantinople, and is the seventh book on the second shelf, on the right hand as you go in.'" This is not to be taken as a proof of the extraordinary memory of Magliabecchi; for, the book in question being a remarkable one, it is not at all wonderful that the circumstance, which, in point of fact, principally made it so should have been distinctly remembered by him: but the familiar style in which he alludes to the localities of the Sultan's library,—speaking of it in the easy, offhand manner of a person in the habit of being there every day of his life,—shows the hold that everything about it had taken of his fancy, and how entirely books were his world.

We are too apt, perhaps, to underrate Magliabecchi as a mere *helluo librorum*, or book glutton. Probably few men have passed their lives with more enjoyment to themselves, and, at the same time, more serviceably in regard to others. His powers of mind, wonderful as they were in certain respects, do not seem to have been such as qualified him for profound and original thinking, or for enlarging the boundaries of human knowledge. He did what he was best fitted to do well, when he devoted himself to the accumulation of a multifarious learning for his own gratification, and the benefit of all who needed his assistance. In choosing this pro-

vince for himself, he certainly chose that which no one else could have occupied so successfully.

The Rev. Joseph Spence, whom we have already mentioned more than once in these pages, has written a little volume, which he entitles, 'A Parallel, in the manner of Plutarch, between a most celebrated man of Florence, and one, scarce ever heard of, in England.' The celebrated Florentine is Magliabecchi; and our obscure countryman, with whom he is compared, is a person of the name of Robert Hill. Hill, as Spence informs us, was born in 1699, at Miswell, near Tring, in Hertfordshire, of parents in humble life, who had scarcely been married a year when his father died. Five years after this event his mother was married a second time to a tailor at Buckingham; but upon removing to that town she left Robert at Miswell, in charge of his grandmother. The old woman herself taught him to read, and afterwards sent him to school for seven or eight weeks to learn writing, which was all the school education he ever received. He then went to reside with an uncle who lived at Tring Grove, by whom he was employed to drive the plough, and do other country work. At last, when he was about fifteen years of age, it was resolved to bind him an apprentice to his father-in-law, the tailor. With him he remained for the usual period of seven years, in which time he learned that business. In the year 1716, he chanced to get hold of an imperfect Latin Accidence and Grammar, and about three-fourths of a Littleton's Dictionary. He had already begun to be a great reader, purchasing candles for himself with what money he could procure, and sitting up at his books a great part of the night, the only time when he had any leisure; but these acquisitions gave additional force to a desire he had for some time felt to learn Latin, originally excited, as he declared, by some epitaphs in that language in the church, which his curiosity made him wish very

much to be able to read. Next year, however, he was sent back to Tring Grove, in consequence of the small-pox raging in Buckingham; and, in the hurry of departure, he left his Latin books behind him. It was a year and a quarter before he returned to Buckingham, and during that interval he was employed in keeping his uncle's sheep, an occupation in which he said he was very happy, as, to use his own expression, "he could lie under a hedge and read all day long." The only books he had with him were the 'Practice of Piety,' the 'Whole Duty of Man,' and a French Grammar, which he read so often through, that at last he had them almost all by heart. When he got back to Buckingham, however, he found his old Latin Grammar; and this set him anew on his classical studies. Here he derived considerable assistance from some of his young companions, who were attending the Free Grammar School of the place, and whom he used to bribe to help him over his difficulties, by doing for them in return any little service in his power. He considered himself very well paid for running on a message by being told the English of some Latin word, which he had not been able to find in his dictionary. In this way he enabled himself, before the expiration of his apprenticeship, to read a great part of a Latin Testament, which he had purchased, as well as of a Cæsar, which some one had given him.

On getting over his apprenticeship, he married, and set up in business for himself. Soon after, a gentleman by whom he was employed gave him a Homer and a Greek Testament; upon which, as he could not bear to have a book in his possession which he was unable to read, he resolved to learn Greek. Accordingly he imparted his scheme to a young gentleman to whom he was known, and received from him a grammar of the language, and a promise of his assistance, Hill engaging to teach him to fish in return for his literary instructions.

His family beginning now to increase, he bethought him of adding something to his income by his book-knowledge; and in the year 1724, he opened a school for reading, writing, and arithmetic, which he continued to teach for six or seven years. By his own account, however, he was not at first very well prepared for some of the duties of his new employment. Soon after he had entered upon it, a scholar came to him wishing to receive lessons in arithmetic, who had already advanced as far as decimal fractions. Poor Hill himself had at this time got no further than what he calls "a little way into division;" and he was at first in no small consternation: however, he hit upon a plan of managing the matter which answered well enough. To consume the time, he set his pupil, by way of preliminary exercise, to copy a series of tables, which had some apparent relation to the subject of his intended studies. They must have been tolerably voluminous, for we are told they occupied the patient writer six weeks, although it may be supposed his master was not very importunate in urging him through the task. Meanwhile, however, Hill made the best use he could of the respite he had obtained for himself by this stratagem; and by sitting up frequently nearly the whole night, after his day's work was over, he contrived, by the time the copying of the tables was finished, to be a small degree in advance of his pupil.

After he had been married for seven or eight years his wife died; but in two years he married again. This second match turned out very unfortunate; his wife, who appears to have been a worthless person, having in a short time run him so much in debt, that he found it necessary to leave the place, and thus to effect his escape at once from her and his creditors. After this he led, for several years, a wandering life; continuing, however, as he travelled through the country, both to work at his business and to pursue his studies

He was now seized with a violent desire to learn Hebrew, in consequence of meeting with some quotations in that language in a book which he was perusing; but for a long time he could not find a grammar he could make anything of, although he bought and tried a great many; and at last he got so out of humour at his ill success, that he disposed of them all again, and gave up his design. His desire to learn the language, however, soon returned; and, having bought a lot of thirteen Hebrew books for as many shillings, he was lucky enough to find among them a grammar (Stennit's) which he was able to understand; and, having in this way got over the first difficulties of the study, he went on with great ease.

It was twelve years after he parted from his wife before he returned to Buckingham, which he did at last, on hearing accidentally that she had been two or three years dead. Soon after his return, he married a third time, and once more resumed a domestic and settled life.

This was in the year 1747. Till now he had, according to his own account, concealed his literary acquirements; but about this time he attracted the notice of a clergyman in the neighbourhood of Buckingham, who had chanced to put a question to him, which he answered in such a way as to discover his scholarship. His clerical friend, some time after the commencement of their acquaintance, put into his hands Bishop Clayton's 'Essay on Spirit;' and Hill, having read the book, wrote a series of remarks on it, which were published in the year 1753. This was his first attempt at authorship. He afterwards sent to the press several other productions on theological subjects, of which one, entitled 'Criticisms on the Book of Job,' in five sheets, was the largest.

When Spence first met Hill, which was at the house of the clergyman just mentioned, he was in great

poverty, and struggling hard to obtain a subsistence for himself and his family. Bad times had made employment scarce; and "this," says Spence, "has reduced him so very low, that I have been informed that he has passed many and many whole days in this and the former year without tasting anything but water and tobacco. He has a wife and four small children, the eldest of them not above eight years old; and what bread they could get he often spared from his own hunger to help towards satisfying theirs." Spence's principal object in publishing his little work was to raise a subscription for the poor scholar who was its subject; and who, notwithstanding some errors by which part of his life was marked, appears to have been upon the whole a person of much worth of character, and well deserving of public sympathy and encouragement. It is believed that the effect of this appeal was to relieve him, for the rest of his days, from the difficulties under which he was at this time suffering. He continued to live at Buckingham for about twenty years after his remarkable acquirements had in this way been made known to the world, having died there in the year 1777.

Hill was evidently not a person of any uncommon extent of talent or quickness of apprehension; and it is this peculiarity that chiefly makes his example interesting and instructive. His story teaches us what the mere love and persevering pursuit of knowledge may accomplish, even where there is no extraordinary degree of mental power to make up for the want of a regular education. All his acquirements were made laboriously and slowly. As he himself stated, he had been seven years in learning Latin, and fourteen in learning Greek; and, although he declared he could teach any person Hebrew in six weeks, his own difficulties, we have just seen, in the acquisition of the elements of that tongue, had been far from inconsiderable. Everything yielded,

however, to his invincible perseverance, and to a zeal which no labour could damp or exhaust. "When I was saying to him," writes Spence, "among other things, that I was afraid his studies must have broken in upon his other business too much, he said that sometimes they had a little; but that his usual way had been to sit up very deep into the nights, or else to rise by two or three in the morning, on purpose to get time for reading, without prejudicing himself in his trade." Although of a weakly constitution, he had in this way, we are told, accustomed himself to do very well with only two or three hours of sleep in the twenty-four, and he lived to be seventy-eight.

Nearly contemporary with Hill was HENRY WILD, another learned tailor, who had also acquired an extraordinary knowledge of languages chiefly by his own unassisted efforts. Wild, who was born in 1684, had been at the grammar-school of Norwich for several years when a boy; but, upon leaving it, was bound apprentice to a tailor in the same city, with whom he served first for seven years under his indenture, and then for seven more as a journeyman. In the course of this protracted estrangement from literature, he almost completely forgot whatever scholarship he had at one time possessed. Having, however, been attacked by a lingering fever and ague, and obliged to discontinue working at his trade, he took to reading by way of amusing his leisure; and it was in the course of his perusal of a work of controversial divinity, that, like Hill, he met with some Hebrew quotations, which are said to have first inspired him with the resolution of endeavouring to recover his school-learning. Accordingly, by labouring hard for some time, he at last succeeded in enabling himself again to read Latin with tolerable facility: upon this he immediately proceeded to the study of Hebrew, and soon made considerable progress in that tongue also, by the aid of a dictionary, in which the words were rendered

in Latin. While he was thus engaged, his health gradually improved, and he was enabled to return to his business; but he did not, for all that, neglect his studies. After working all day, his general practice was to sit up reading for a great part of the night, deeming himself far more than compensated for his labours and privations, by obtaining, even at this sacrifice, a few hours every week for the pursuits he loved; and in this manner, within seven years, he had actually made himself master of the Latin, Greek, Hebrew, Chaldee, Syriac, Arabic, and Persian languages. Yet his extraordinary attainments seem not to have been generally known till a fortunate accident introduced him to the notice of Dean Prideaux, a distinguished proficient in Oriental learning. The Dean, who also resided in Norwich, was one day shown some Arabic manuscripts in a bookseller's shop, which, upon inspecting them, he wished to purchase; but the bookseller would not dispose of them for the price he offered. Some days afterwards, regretting that he had not secured the manuscripts, he returned to the bookseller, intending to give him what he asked, when, upon making inquiry after them, he learned to his consternation that they had been sold to a tailor! Never doubting that they were destined for the scissors, if not already in shreds, he requested that the tailor, who was no other than Wild, might be instantly sent for, that they might yet, if it were possible, be saved. Upon Wild making his appearance, the Dean had the gratification of learning, in answer to his first question, that the parchments were still uninjured; but he was very much surprised when, upon expressing his wish to purchase them, Wild refused to part with them. "What can you mean to make of them?" asked the Dean. Wild told him he intended to read them; and the Dean found, upon examining him, that this was no vain boast: the manuscripts were produced, and Wild read and translated a part of them

in his presence. Dr. Prideaux soon after exerted himself to raise a small subscription for this poor and meritorious scholar, by which means he was sent to Oxford, not to be enteréd at the University, but that he might have access to the libraries, and find a more appropriate occupation for his talents in teaching those Oriental tongues with which he had in so wonderful a manner contrived to make himself acquainted. He came to Oxford about the year 1718, and resided in that city, where he went by the name of the Arabian Tailor, for two or three years, having been employed partly in teaching, and partly in making transcripts and translations from Oriental manuscripts in the Bodleian library. Nothing more is known of him, except that in 1720 he removed to London, where he was patronised by the celebrated Dr. Mead. The period of his death has not been ascertained; but in 1734 there appeared a translation by him of an Arabic production, entitled 'Mahomet's Journey to Heaven,' which is supposed, however, to have been a posthumous publication. There is a letter from Dr. Turner respecting Wild among the 'Letters by Eminent Persons,' published some years ago by Dr. Bliss, from which it would appear, that, in pursuing his solitary studies, he had to struggle with severe penury, as well as with other disadvantages. The letter is dated 1714, while Wild was still in Norwich; and the writer, after mentioning his extensive acquisitions, adds, "But he is very poor, and his landlord lately seized a Polyglot Bible (which he had made shift to purchase) for rent."

We may here mention the unhappy EUGENE ARAM, who was tried and convicted in 1759 for a murder committed fourteen years before, the strange circumstances that led to the discovery of which, after so long a concealment, form one of the most arresting chapters in the history of human guilt. This man, whose lot it was to come to so miserable an end, strikingly exemplified, in the previous part of his life, what resolution and perse-

verance may accomplish in the work of self-education. Aram, who was born in Yorkshire in the year 1704, only learned to read a little English in the school of his native village, and never afterwards had the benefit of any further instruction; yet, by his own exertions, he first qualified himself to teach all the more common branches of education, including arithmetic and mathematics, and then proceeded, with an industry that has scarcely been surpassed, to make his way to the highest departments of learning. In a letter written to a clerical friend from York Castle, after his conviction, in which he gives an account of his life, he says, referring to the period when he was first engaged in thus at the same time teaching others and himself:—"Perceiving the deficiency in my education, and sensible of my want of the learned languages, and prompted by an irresistible covetousness of knowledge, I commenced a series of studies in that way, and undertook the tediousness, the intricacies, and the labours of grammar. I selected Lily from the rest, all which I got and repeated by heart. The task of repeating it all every day was impossible while I attended the school; so I divided it into portions, by which method it was pronounced thrice every week; and this I performed for years. Next I became acquainted with Camden's Greek Grammar, which I also repeated in the same manner, *memoriter*. Thus instructed, I entered upon the Latin classics, whose allurements repaid my assiduities and my labours. I remember to have at first hung over five lines for a whole day; and never, in all the painful course of my reading, left any one passage but I did, or thought I did, perfectly comprehend it. After I had accurately perused every one of the Latin classics, historians, and poets, I went through the Greek Testament, first parsing every word as I proceeded: next I ventured upon Hesiod, Homer, Theocritus, Herodotus, Thucydides, and all the Greek tragedians. A tedious labour was this; but my

former acquaintance with history lessened it extremely, because it threw a light upon many passages which, without that assistance, must have appeared obscure." There was scarcely any part of literature, indeed, with which Aram was not profoundly conversant. History, antiquities, heraldry, botany, had all been elaborately and extensively studied by him: but his favourite pursuit was the investigation and comparison of languages, with a view to the determination of their origin and connexion. For this purpose, in addition to the Greek, Latin, and French, he had studied with great attention several of the Oriental tongues, and all the remaining dialects of the Celtic. He had meditated, indeed, the compilation of a dictionary of the Celtic, Hebrew, Greek, Latin, and English, in which different languages he is said to have left behind him a list of about three thousand words, which he considered them to possess in common. Some of his observations upon this subject have been printed, and are creditable both to his ingenuity and good sense. The address, we may add, which he delivered on his trial in his own defence, is an extraordinary specimen of the curious learning with which his mind seems to have been stored. But he is a mournful example of high mental powers brought low by ill-regulated passions, and of the vanity and worthlessness even of talents and knowledge, when separated from moral principle.*

There is an English translation of the Scriptures, in two volumes folio, which was published at London in 1765, and which, although not distinguished by much elegance, is held in considerable esteem for its general accuracy and closeness to the original. This was the

* The story of Eugene Aram has now been rendered familiar to all by having engaged the pen of a distinguished living novelist. Aram's trial is in Howell's *State Trials*; but the particulars given above are mostly from his life in the second edition of the *Biographia Britannica.*

work of a person of the name of ANTHONY PURVER, who, at the time when it appeared, was a schoolmaster at Andover, but had been almost entirely self-educated. Having been born (about the year 1702) in low life, he had been originally apprenticed to a shoemaker, by whom, however, he was employed as a shepherd, an occupation which, as in the case of Hill, afforded him considerable leisure for reading and study. In the course of time he acquired, with scarcely any assistance, a very considerable knowledge of Latin, Greek, and Hebrew. It was the accidental perusal of a book, in which some errors were pointed out in the common translation of the Bible, that first awakened in him a desire to make himself acquainted with the two sacred tongues. Purver, who died in 1777, was a Quaker; and his version of the Scriptures, which was the labour of thirty years of his life, was published at the expense of the eminent Dr. Fothergill,* who was himself also a member of that religious body.

About thirty years ago there appeared in the newspapers an account of a scholar in humble life, who died some time before in London, and whose attainments seem to have been as extensive, and as entirely the result of his own exertions in quest of knowledge, as those of any one of the individuals we have yet mentioned. JOSEPH PENDRELL had received at school nothing more than the ordinary education in English reading and writing, and at an early age was apprenticed by his father to a shoemaker, which business he followed until his death. He had when young a great taste for books; but was first led to the more learned studies in which he eventually made so much progress

* Dr. Fothergill gave Purver 1000*l.* for the manuscript of his translation (an attempt had before been made to publish it in numbers), and also carried it, at his own expense, through the press. Purver afterwards revised the work for a second edition, which, however, has never appeared. — See *Chalmers's Biographical Dictionary.*

by the following accident:—Stopping at a book-stall one day, he laid hold of a book of arithmetic marked fourpence; he purchased it, and availed himself of his leisure hours at home in making himself master of the subject. At the end of the volume he found a short introduction to the mathematics. This stimulated him to make further purchases of scientific works; and in this way he gradually proceeded from the elements to the highest departments of mathematical learning. When a journeyman, he saved every penny he could in order to purchase books. Finding there were many valuable writers on his favourite subject in French, he determined to study that language; for which purpose he procured a grammar, a book of exercises, and a dictionary; and he persevered until he was able to read the French writers with ease. In the same manner he proceeded to acquire the Latin and Greek languages, of the latter of which he made himself master so far as to have little difficulty in reading the Septuagint, or any other common prose work. He had formed a large collection of classical books, many of which he purchased at the auction-rooms in King-street, Covent-garden, formerly belonging to Paterson, the celebrated book-auctioneer,* in whose time they formed a favourite resort of literary men. Pendrell did not, however, avail himself of any opportunity of becoming known to the literary characters he was accustomed to meet here. On the contrary, he always shunned notice, and made it a practice invariably to conceal his name when a lot was knocked down to him. He had often in these rooms got into talk with the learned Bishop Lowth, when they chanced to meet before the sale began. The Bishop was much pleased with his conversation, and one day asked Paterson who he was, on which Paterson took the first opportunity to inquire his name, acquainting him, at the same time, who the person was that felt

* See p. 197.

interested in his favour. The poor shoemaker, however, from extreme diffidence, declined telling Paterson his name, although the introduction to the Bishop, of which an opportunity was thus given him, might probably have drawn him from obscurity, and led to some improvement of his humble circumstances. Pendrell's knowledge of mathematical science is described as having been profound and extensive, embracing fortification, navigation, astronomy, and all the different departments of natural philosophy; and he is stated to have been also very well acquainted with most of our English writers in poetry and the *belles lettres.* He resided for several years before his death in Gray's-buildings, Duke-street, Manchester-square, and attained the age of seventy-five. It is supposed that this modest self-taught scholar was descended from, or at least of the same family with, the Pendrell who concealed Charles II. after the battle of Worcester.

CHAPTER XXII.

DR. ALEXANDER MURRAY.

WITH the exception of Magliabecchi, the names we have as yet mentioned under our present head have been those of persons whose acquirements, although most honourable to themselves, and well entitled to our admiration when the circumstances in which they were made are considered, have yet hardly been such as to secure for their possessors any permanent place in the annals of the learned. They are remembered not so much on account of what they accomplished as on account of the disadvantages under which it was accomplished. But he whom we are now to introduce, while the narrative of his progress from obscurity to distinction presents to us as praiseworthy a struggle with adverse circumstances as is anywhere else recorded, had taken his rank, even before his premature death, among the scholars of his time; and, although suddenly arrested when in the full speed of his career, has bequeathed something of himself in his works to posterity. We speak of the late DR. ALEXANDER MURRAY, the celebrated Orientalist; nor are there many more interesting histories than his in the whole range of literary biography. Happily the earlier portion of it, with which we have principally to do, has been sketched by his own pen* with characteristic *naïveté*; and we are

* In a letter to the Reverend Mr. Maitland, minister of Minnigaff, written in 1812,—evidently a hasty composition, as it bears to be, and intended only for the eye of a friend, but more beautiful and touching in its unlaboured, and sometimes even incorrect, simplicity of phrase and manner than any less natural eloquence could have made it.

thus in possession both of a very full and of a perfectly trustworthy detail of everything we can desire to know respecting him. This piece of autobiography, which is prefixed to Dr. Murray's posthumous work, 'The History of European Languages,' is, we believe, comparatively but little known to ordinary readers; and both for that reason, and from its value as an illustration of our subject, we shall allot as much space as can be afforded to an abstract of it. And we shall also occasionally refer to one or two other sources, from which a few additional particulars with regard to Dr. Murray are to be gathered.

He was born in the parish of Minnigaff, in the shire of Kirkcudbright, on the 22nd of October, 1775. His father was at this time nearly seventy years of age, and had been a shepherd all his life, as his own father, and probably his ancestors for many generations, had also been. Alexander's mother was also the daughter of a shepherd, and was the old man's second wife; several sons, whom he had by a former marriage, being all brought up to the same primitive occupation. This modern patriarch died in the year 1797, at the age of ninety-one; and he appears to have been a man of considerable natural sagacity, and possessed at least of the simple scholarship of which the Scottish peasant is rarely destitute.

It was from his father that Alexander received his first lessons in reading. This was in his sixth year; and he gives an amusing account of the process. The old man, he tells us, bought him a Catechism (which in Scotland is generally printed with a copy of the alphabet, in a large type, prefixed); but "as it was too good a book," he proceeds, "for me to handle at all times, it was generally locked up, and he, throughout the winter, drew the figures of the letters to me, in his *written* hand, on the board of an old *wool-card*, with the black end of an extinguished heather stem or root, snatched from the

fire. I soon learned all the alphabet in this form, and became *writer* as well as *reader*. I wrought with the *board* and *brand* continually. Then the Catechism was presented, and in a month or two I could read the easier parts of it. I daily amused myself with copying, as above, the printed letters. In May, 1782, he gave me a small Psalm-book, for which I totally abandoned the Catechism, which I did not like, and which I tore into two pieces, and concealed in a hole of a dyke. I soon got many psalms by memory, and longed for a new book. Here difficulties rose. The Bible, used every night in the family, I was not permitted to open or touch. The rest of the books were put up in chests. I at length got a New Testament, and read the historical parts with great curiosity and ardour. But I longed to read the Bible, which seemed to me a much more pleasant book; and I actually went to where I knew an old loose-leaved Bible lay, and carried it away in piecemeal. I perfectly remember the strange pleasure I felt in reading the histories of Abraham and David. I liked mournful narratives; and greatly admired Jeremiah, Ezekiel, and the Lamentations. I pored on these pieces of the Bible in secret for many months, but I durst not show them openly; and, as I read constantly and remembered well, I soon astonished all our honest neighbours with the large passages of Scripture I repeated before them. I have forgot too much of my biblical knowledge, but I can still rehearse all the names of the Patriarchs from Adam to Christ, and various other narratives seldom committed to memory."

His father's whole property consisted only of two or three scores of sheep, and four muirland cows. "He had no debts," says his son, "and no money." As all his other sons were shepherds, it was with him a matter of course that Alexander should be brought up to the same employment; and accordingly, as soon as he had strength for anything, that is, when he was about seven

or eight years of age, he was sent to the hills with the sheep. However, from the first he gave no promise of making a good shepherd, and he was often blamed by his father as lazy and useless. The truth is he was not stout, and was likewise short-sighted,* which his father did not know. Besides, "I was sedentary," says he, "indolent, and given to books, and writing on boards with coals." But his father was too poor to send him to school, his attendance upon which, indeed, would have been scarcely practicable, unless he could have been boarded in the village, from which their cottage, situated in a wild and sequestered glen, was five or six miles distant. About this time, however (in May, 1784), a brother of his mother's, who had made a little money, came to pay them a visit; and hearing such accounts of the genius of his nephew, whose fame was now the discourse of the whole glen, he offered to be at the expense of boarding him for a short time in New Galloway, and keeping him at school there. Our home-taught and mostly self-taught scholar, as he tells us himself, made at first a somewhat awkward figure on this new scene. "My pronunciation of words," says he, "was laughed at, and my whole speech was a subject of fun." "But," he adds, "I soon gained impudence; and before the vacation in August I often stood *dux* of the Bible class. I was in the mean time taught to write copies, and use paper and ink. But I both wrote and printed, that is, imitated printed letters, when out of school."

His attendance at school, however, had scarcely lasted for three months, when the poor boy fell into ill health, and was obliged to return home. For nearly five years after this he was left again to be his own in-

* This defect, according to his namesake, the author of the 'Literary History of Galloway,' who has given a sketch of Dr. Murray's life, made his father often think that his son wilfully deceived him by the incorrect account he gave of the sheep, when sent to observe in what directions they were straying.

structor, with no assistance whatever from any one. He soon recovered his health; but during the long period we have mentioned he looked in vain for the means of again pursuing his studies under the advantages he had for so short a time enjoyed. As soon as he became sufficiently well he was put to his old employment of assisting the rest of the family as a shepherd boy. "I was still," he says, however, "attached to reading, printing of words, and getting by heart ballads, of which I procured several. . . . About this time, and for years after, I spent every sixpence that friends or strangers gave me on ballads and penny histories. I carried bundles of these in my pockets, and read them when sent to look for cattle on the banks of Loch Greanoch, and on the wild hills in its neighbourhood." And thus passed away about three years of his life. All this time the Bible and these ballads seem to have formed almost his only reading; yet even with this scanty library he contrived to acquire among the simple inhabitants of the glen a reputation for unrivalled erudition. "My fame," he tells us, "for reading and *a memory* was loud, and several said that I was 'a living miracle.' I puzzled the honest elders of the church with recitals of Scripture, and discourses about Jerusalem, &c. &c." Towards the close of the year 1787, he borrowed from a friend L'Estrange's translation of Josephus, and Salmon's Geographical Grammar. This last work, in particular, as we shall see immediately, had no little share in determining the direction and character of the studies of his future life. Referring, however, merely to the new information of which it put him immediately in possession, he says, "I got immense benefit from Salmon's book. It gave me an idea of geography and universal history, and I actually recollect at this day almost everything it contains." A Grammar of Geography was also one of the first books that Ferguson studied; although the minds

of the two students, differing as they did in original character, were attracted by different parts of their common manual; the one pondering its description of the artificial sphere, the other musing over its accounts of foreign lands, and of the history and languages of the nations inhabiting them. Murray, however, learned also to copy the maps which he found in the book; and, indeed, carried his study of practical geography so far as to make similar delineations of his native glen and its neighbourhood.

He was now twelve years of age; and, as there seemed to be no likelihood that he would ever be able to gain his bread as a shepherd, his parents were probably anxious that he should attempt something in another way to help to maintain himself. Accordingly, in the latter part of the year 1787, he engaged as teacher in the families of two of the neighbouring farmers; for his services in which capacity, throughout the winter, he was remunerated with the sum of sixteen shillings! He had probably, however, his board free in addition to his salary, of which he immediately laid out a part in the purchase of books. One of these was Cocker's Arithmetic, "the plainest," says he, "of all books, from which, in two or three months, I learned the four principal rules of arithmetic, and even advanced to the Rule of Three, with no additional assistance except the use of an old copy-book of examples made by some boy at school, and a few verbal directions from my brother Robert, the only one of all my father's sons by his first marriage that remained with us." He borrowed, about the same time, some old magazines from a country acquaintance. "My memory now," says he, "contained a very large mass of historical facts and ballad poetry, which I repeated with pleasure to myself and the astonished approbation of the peasants around me."

At last, his father having been employed to *herd* on

another farm, which brought them nearer the village, Alexander was once more permitted to go to school at Minnigaff for three days in the week. "I made the most," says he, "of these days; I came about an hour before the school met; I pored on my arithmetic, in which I am still a proficient; and I regularly opened and read all the English books, such as the 'Spectator,' 'World,' &c. &c., brought by the children to school. I seldom joined in any play at the usual hours, but read constantly." "It occurred to me," he adds, "that I might get qualified for a merchant's clerk. I, therefore, cast a sharp look towards the method of book-keeping, and got some idea of its forms by reading 'Hutton' in the school, and by glancing at the books of other scholars." This second period of his attendance at school, however, did not last even so long as the former. It terminated at the autumn vacation, that is to say, in about six weeks; and the winter was again devoted to teaching the children of a few of the neighbouring farmers.

In 1790, he again attended school during the summer for about three months and a half. It seems to have been about this time that his taste for learning foreign languages first began to develope itself, having been excited, as he tells us, by his study of Salmon's Geography. "I had," he writes, "in 1787 and 1788 often admired and mused on the specimens of the Lord's Prayer, in every language, found in Salmon's Grammar. I had read in the magazines and Spectator that Homer, Virgil, Milton, Shakespeare, and Newton were the greatest of mankind. I had been early informed that Hebrew was the first language by some *elders* and good religious people. In 1789, at Drigmore, an old woman who lived near showed me her Psalm-book, which was printed with a large type, had notes on each page, and, likewise, what I discovered to be the Hebrew alphabet, marked letter after letter, in the 119th Psalm. I took a

copy of these letters, by printing them off in my old way, and kept them." Meantime, as he still entertained the notion of going out as a clerk to the West Indies, he took advantage of the few weeks he was to be at school to begin the study of the French language. Not satisfied, however, with learning merely the tasks set him by his master, he used to remain in the school, during the middle of the day, while his companions were at play, and compare together the different grammars used in the class. But we must allow him to tell in his own way the manner in which his French studies introduced him by accident to the Latin tongue also:—

"About the 15th of June, Kerr [one of his class-fellows] told me that he had once learned Latin for a fortnight, but had not liked it, and still had the Rudiments beside him. I said, 'Do lend me them; I wish to see what the nouns and verbs are like, and whether they resemble our French.' He gave me the book. I examined it for four or five days, and found that the nouns had changes on the last syllable, and looked very singular. I used to repeat a lesson from the French Rudiments every forenoon in school. On the morning of the midsummer fair of Newton Stewart I set out for school, and accidentally put into my pocket the Latin Grammar instead of the French Rudiments. On an ordinary day, Mr. Cramond would have chid me for this; but on that festive morning he was *mellow*, and in excellent spirits—a state not good for a teacher, but always desired in him by me, for he was then very communicative. With great glee he replied, when I told him my mistake and showed him the Rudiments, 'Gad, Sandy, I shall try thee with Latin;' and, accordingly, read over to me no less than two of the declensions. It was his custom with me to permit me to get as long lessons as I pleased, and never to fetter me by joining me to a class. There was at that time in the school a class of four boys, advanced as far as the pro-

nouns in Latin grammar. They ridiculed my separated condition. But before the vacation in August I had reached the end of the Rudiments, knew a good deal more than they, by reading at home the notes on the foot of each page, and was so greatly improved in French, that I could read almost any French book at opening of it. I compared French and Latin, and riveted the words of both in my memory by this practice. When proceeding with the Latin verbs, I often sat in the school all mid-day, and pored on the first page of Robert Cooper's [another of his schoolfellows] Greek grammar—the only one I had ever seen. He was then reading Livy, and learning Greek. By help of his book I mastered the letters; but I saw the sense of the Latin rules in a very indistinct manner. Some boy lent me an old Corderius, and a friend made me a present of Eutropius. I got a common vocabulary from my companion Kerr. I read to my teacher a number of colloquies, and before the end of July was permitted to take lessons in Eutropius. There was a copy of Eutropius in the school that had a literal translation. I studied this last with great attention, and compared the English and Latin. When my lesson was prepared, I always made an excursion into the rest of every book; and my books were not, like those of other schoolboys, opened only in one place, and where the lesson lay."

All this was the work of about two months and a half before the vacation and a fortnight after it. During the winter he was as usual employed in teaching; but he continued to pursue his own studies in private. Having stated that he had bought an old copy of Ainsworth's Dictionary for eighteen-pence, and been lucky enough to find a few other Latin books in the possession of some of his friends, he proceeds:—"I employed every spare moment in pondering upon these books. I literally read the Dictionary throughout. My method was to revolve the leaves of the letter A, to

notice all the principal words and their Greek synonymes, not omitting a glance at the Hebrew; to do the same by B, and so on through the book. I then returned from X and Z to A; and in these winter months I amassed a large stock of Latin and Greek vocables. From this exercise I took to Eutropius, Ovid, and Cæsar, or at times to Ruddiman's Grammar. The inverted order often perplexed me; and I frequently mistook, but also frequently discerned, the sense. The wild fictions of Ovid have had charms for me ever since. I was not a judge of simple and elegant composition; but when any passage contained wild, sublime, pathetic, or singular expressions, I both felt and tenaciously remembered them. Here I got another book which, from that time, has influenced and inflamed my imagination. This was Paradise Lost—of which I had heard, and which I was eager to see. . . . . I cannot describe to you the ardour, or various feelings, with which I read, studied, and admired this *first-rate* work. I found it as difficult to understand as Latin, and soon saw that it required to be *parsed*, like that language. . . . . I account my first acquaintance with Paradise Lost an era in my reading."

The following summer, that of the year 1791, appears to have been spent by this indefatigable student still more laboriously than any of the preceding; and the advancement he made is a surprising evidence of what diligence may accomplish. He again attended school for about three months, where he found a class reading Ovid and Cæsar, and afterwards Virgil. "I laughed," says he, "at the difficulty with which they prepared their lessons; and often obliged them by reading them over, to assist the work of preparation." In addition to the tasks of the school, he read with avidity by himself whatever books, in English, Latin, or Greek, he could anywhere borrow. Besides remaining in the school, according to his old custom, at the hours of play, when

his amusement was to read the books belonging to the other scholars, he employed his time at home in almost incessant study. "My practice was," he says, "to lay down a new and difficult book after it had wearied me; to take up another—then a third—and to resume this rotation frequently and laboriously. I always strove to seize the sense; but, when I supposed that I had succeeded, I did not weary myself with analysing every sentence." Having introduced himself to Mr. Maitland, the clergyman of the parish, by writing letters to him in Latin and Greek, he got from that gentleman a number of books, and these, which included Homer, Longinus, the Œdipus Tyrannus of Sophocles, a volume of Cicero's Orations, &c., he read and studied with great diligence. Nor were his studies confined to the classic tongues. Having purchased a copy of Robertson's Hebrew Grammar, he got through it, with all the intricacies of the doctrine of the points, of which the author is an uncompromising champion, in a month. He was soon after fortunate enough to procure a dictionary of this language, from an old man living in the neighbourhood, whose son had been educated for the church;* and, as the volume happened to contain the whole of the Book of Ruth in the original, he considered it an invaluable acquisition. But a still greater prize than this was a copy of the entire Bible in Hebrew, which was lent to him for a few months by a woman, with whom it had been left by her brother, a clergyman in Ireland. "I made good use," says he, "of this loan; I read it throughout, and many passages and books of it a number of times." This summer must, indeed, to use

* This was the father of Robert Heron, a laborious literary character, who died in London a few years after the commencement of the present century, and of whom an account may be found in Mr. D'Israeli's 'Calamities of Authors.' There was a relationship, as we are informed by the author of 'The Literary History of Galloway,' between Heron's family and that of Murray.

his own words, have been "devoted to hard and continued reading." He had, in fact, it would appear, actually made himself familiar, and that chiefly by his own unassisted exertions, with the French, Latin, Greek, and Hebrew languages, and perused several of the principal authors in all of them, within about a year and a half from the time when they were all entirely unknown to him; for it was at the end of May, 1790, that he commenced, as we have seen, the study of French, and all this work had been done by the end of November in the year following. There is not, perhaps, on record a more extraordinary instance of youthful ardour and perseverance. It shows what is possible to be accomplished.

He was again engaged in teaching during the winter, and received, as he states, for his labours about thirty-five or forty shillings. "I devoted," however, he says, "as usual, every spare hour to study. French, Latin, Greek, and Hebrew occupied all my leisure time." In the summer of 1792 he returned to school for the last time, remaining for about three months and a half. The different periods of his school attendance, added together, make about thirteen months, scattered over the space of nearly eight years. From November, 1792, till the March following he was once more employed in teaching the children of one of the farmers, at a salary of thirty shillings. This winter a friend lent him a copy of Bailey's Dictionary, from which he learned, he informs us, a vast variety of useful matters. Among other things, it put him in possession of the Anglo-Saxon alphabet and Pater Noster, as well as of a great many words in the same dialect. This was his introduction to the study of the northern languages. There chanced, also, to fall into his hands about the same time a small religious treatise in Welsh, a language of which he had neither dictionary nor grammar. "I mused, however," says he, "a good deal on the quotations of

Scripture that abounded in it, and got acquainted with many Welsh words and sentences. If I had a copy of the Bible in any language of which I knew the alphabet, I could make considerable progress in learning it, without grammar or dictionary. This is done by minute observation and comparison of words, terminations, and phrases. It is the method dictated by necessity, in the absence of all assistance." About this time, too, he made himself acquainted with the Abyssinian alphabet, from an inaccurate copy of it which he found in an old volume of the Universal History. The Arabic letters he had learned before, from Robertson's Hebrew Grammar.

"In the autumn of 1792," he says, "I had, in the hour of ignorance and ambition, believed myself capable of writing an epic poem." So ardent, indeed, was his poetical enthusiasm at this period, that, having obtained the loan of a volume of Ossian for four days, he had actually transcribed, for his own use, the whole of Fingal. During the ensuing winter he wrote several thousand lines of his poem, which was in blank verse, and its subject the exploits of Prince Arthur. "The poem of 'Arthur,'" says he, "was, so far as I remember, a very noisy, bombastic, wild, and incorrect performance. It was not without obligations to Ossian, Milton, and Homer. But I had completed the seventh book before I discerned that my predecessors were far superior to me in everything. The beauties of the first book of Paradise Lost overwhelmed me, and I began to flag in the *executive department*. My companions, young and ignorant like myself, applauded my verses, but I perceived they were mistaken; for my rule of judgment proceeded from comparison in another school of criticism." The unfinished epic accordingly was thrown into the fire. But poor Murray, in truth, now in his nineteenth year, was looking around him, in all directions, for the means of obtaining an object on which he had

set his heart; and he had probably at one time indulged the dream of reaching it through the publication of this poem. His most intimate school companion had, the year before, gone to the university, for which Murray no doubt felt that he himself was infinitely better qualified, if his utter want of resources had not, at least for the present, opposed an insurmountable barrier to his ambition. But it was not unnatural for him to hope that the successful exertion of his talents in the way of authorship might perchance enable him to gratify his wishes. So, after destroying his epic, he bethought him of what he should substitute in its place. He had happened to purchase a volume of the manuscript lectures of a German professor on Roman literature. They were written in Latin, and he determined to translate them, and offer them to the world in their English dress. Accordingly, having finished his task, he took the work to Dumfries, in the early part of the year 1794; but neither of the two booksellers of the place would publish it. He had brought with him also a quantity of verse, chiefly in the Scottish dialect; and, the other speculation having failed, he resolved to publish these poems by subscription. Fortunately he was saved from this folly by the judicious counsel of one best of all entitled to advise him here. "During the visit to Dumfries," says he, "I was introduced to Robert Burns, who treated me with great kindness, and told me that, if I could get out to college without publishing my poems, it would be much better, as my taste was young and not formed, and I would be ashamed of my productions when I could write and judge better. I understood this, and resolved to make publication my last resource."

At this place, the narrative, as written by Murray himself, terminates; the part of his history that immediately followed being merely alluded to as well known to the person to whom the letter is addressed. All

unheard of as our poor scholar was by the wealthy and powerful, he had a friend in the same sphere of life in which he himself moved, who became the means of at last procuring for him the opportunity, which he so greatly desired, of prosecuting his studies. This was an itinerant tea-merchant, of the name of M'Harg. He knew Murray well, and had formed so high an idea of his genius and learning, that he was in the habit of sounding his fame wherever he went. Among others to whom he spoke of him, was Mr. James Kinnear, of Edinburgh, then a journeyman printer in the king's printing-office. Mr. Kinnear, with a zeal in behalf of unfriended merit which does him infinite honour, immediately suggested that Murray should transmit an account of himself, and some evidences of his attainments, to Edinburgh, which he undertook to lay before some of the literary characters of that city. This plan was adopted; and the result was, that the young man, having come up to town, was examined by the Principal, and several professors of the university, and so surprised them by the extent and accuracy of his acquaintance with French, Latin, Greek, and Hebrew, that measures were immediately taken for having the classes thrown open to him, and his maintenance secured while attending them. These arrangements, it would be unjust not to mention, were chiefly effected through the exertions of Principal Baird, who procured for him an exhibition, or bursary, as it is called; and whose ardent and most efficient patronage of one thus recommended to him only by his deserts, and his need of patronage, entitles him to the lasting gratitude of the commonwealth of learning. Murray, indeed, did not long stand in need of the aid of any patron. He was very soon able to support himself by the employment which he obtained as a teacher, and by his literary labours. All his difficulties might be said to be over as soon as he had found his way to the university, and his talents had thus been transferred

to a theatre where they were sure to acquire him distinction.

For the next ten or twelve years of his life he resided principally in Edinburgh. During that time, beside passing through the course of education necessary to qualify him for the ministry of the Scottish church, he continued to devote himself with all his old enthusiasm to the study of languages, in which he was so admirably qualified to excel. He prosecuted this branch of learning to an extent, which, up to that time, had been rarely, if ever, surpassed or equalled. By the end of his short life, scarcely one of either the oriental or the northern tongues remained uninvestigated by him, in so far as it was possible to acquire the knowledge of it from sources then accessible in this country. Of the six or seven dialects of the Abyssinian or Ethiopic language, in particular, he had made himself certainly much more completely master than any European had ever been before; and this led to his being selected by the booksellers in 1802 to prepare a new edition of Bruce's Travels, which appeared in seven volumes octavo three years after, and at once placed him in the first rank of the Oriental scholars of the age.

In 1806 he left Edinburgh, having been presented to the church of Urr in Dumfries-shire; and here he remained pursuing his favourite studies for six years. "He devoted his leisure moments while at Urr," says a writer to whom he was known,* "to the composition of his stupendous work on the languages of Europe, without communicating his design almost to a single individual; and a person might have spent whole weeks in his company without hearing a word of his favourite pursuits, or of the extent to which, in the department of philology, he had carried his researches." Events, however, at last called him forth from this retirement, to win and for a short time to occupy a more conspicuous station.

* 'Literary History of Galloway,' by T. Murray, p. 320.

In 1812 the professorship of Oriental Languages in the university of Edinburgh became vacant; and Murray's friends immediately seized the opportunity of endeavouring to obtain for him the situation of all others which he seemed especially formed and endowed to fill. Three other candidates, however, also advanced their pretensions; and, as the result of the election depended upon the votes of the members of the town council, or city corporation, a body consisting of thirty-three individuals, the contest soon became a keen and doubtful one. It was eventually carried on between Murray and a single opponent, one of the other candidates having in the most handsome manner withdrawn as soon as he learned that Murray had come forward, and another having found it impossible to command any interest which gave him a chance of success. A full account of this election, the progress of which was watched by the friends of learning with the deepest anxiety, is given in the *Scots Magazine* for July, 1812. Murray's friends, with Principal Baird at their head, submitted a multitude of testimonials of his qualifications for the vacant chair, as honourable as ever were given to any candidate, whether we look to the decided terms in which they were expressed, or to the authority of the writers. One was from Mr. Hamilton, the very eminent professor of Oriental languages in the East India Collage at Haileybury, in which that gentleman says of Murray:—"I happened last week to meet with him in Galloway, and found his acquisitions in oriental literature and languages so extensive and various as greatly to exceed my power to appreciate them accurately. With the few languages in which I am conversant he discovered an acquaintance that surprised me exceedingly; but the range of his studies included many of which I am completely ignorant." Another was from Mr. Salt, one of the most distinguished of modern Orientalists. "My acquaintance with Mr.

Murray," says he, "originated in my admiration of the deep erudition and extensive research displayed in his edition of Mr. Bruce's Travels in Abyssinia. Having twice visited that country, I was led to pay particular attention to its history and literature, and in these pursuits I received so much assistance from Mr. Murray's labours, that I took an early opportunity, on my return to England in February, 1811, from the mission to Abyssinia in which I had been engaged, to recommend him to the Marquis Wellesley *as the only person in the British dominions*, in my opinion, adequate to translate an Ethiopic letter which I had brought from Ras Willida Selasé, addressed to the king. My recommendation was attended to, and Mr. Murray finished the translation in the most satisfactory way." * There were others, from a host of distinguished names—among which may be mentioned Dr. James Gregory, Mr. (afterwards Sir John) Leslie, Mr. (afterwards Lord) Jeffrey,† Sir Walter Scott, Professors Playfair and Dugald Stewart, &c.—all bearing warm testimony to the general talents and worth of the candidate, even when there was no pretension to be able to appreciate his peculiar scholarship. Well was Murray entitled to say, as he did in a letter written

* After Dr. Murray's death, a pension of 80*l.* a year was bestowed upon his widow by the king, in acknowledgment of his services on this occasion.

† Mr. Jeffrey, in his letter, mentions several articles in the earlier numbers of the *Edinburgh Review* of which Mr. Murray was the writer. Among these is one (in No. 3) on General Vallancey's 'Prospectus of an Irish Dictionary,' some of the opinions expressed in which, it is curious to remark, are very much opposed to those adopted by the author on more mature consideration, and advocated in his great work on language. Mr. Jeffrey notices also a very learned article which he received from Murray on Horne Tooke's *Diversions of Purley*, which was never printed, and which he believed to be still in his possession. Even now, if this paper could be recovered, it might probably be found to be worth giving to the world,—along with any other remains that may exist of the labours of so rare a scholar.

from Urr to one of his most zealous supporters on the day after the election, but before he had learned its result, borrowing the noble words of the prayer of Achilles in Homer,—"If your efforts have been exerted for an unsuccessful candidate, they will not be forgotten; *for we have perished in light!*"

He was elected on the 8th of July by a majority of two votes,* and a few days after the Senate of the University unanimously passed a vote of thanks to Dr. Baird for bringing his pretensions before the patrons, conferring at the same time the degree of Doctor of Divinity upon their new associate. But all these honours came only to make more radiant the setting of the luminary. On the 31st of October Dr. Murray entered upon the discharge of his public duties, in a weak state of health, but with an ardour in which all weakness was forgotten. Although declining in strength every day, he continued to teach his classes during the winter, persevering in the preparation and delivery of a course of most learned lectures on Oriental Literature, which were attended by crowded and admiring audiences, and even carrying an elementary work through the press for the use of his students. A new impression of his edition of Bruce's Travels also appeared in the beginning of February. Engaged in these labours, he could not be persuaded that he was so ill as he really was; and when Mrs. Murray, who had been left behind him at Urr, urged him to permit her to come to town, it was with difficulty that he was at last brought to consent to her joining him by the 16th of April. Fortunately her affection and her fears impelled her to set out on her journey a few days earlier than the appointed time, and she arrived in Edinburgh on the 13th. She found her husband surrounded by his books and papers, and even engaged in dictating to an amanuensis. But life was

* Of twenty-eight members of the town council who voted, fifteen voted for Murray and thirteen for his opponent.

now ebbing rapidly. He retired that evening to the bed from which he never rose; and before the close of another day he was among the dead.

Thus perished, in his thirty-eighth year, one who, if he had lived longer, would probably have reared for himself many trophies and largely extended the bounds of human knowledge. His ambition had always been to perform in the field to which he more especially dedicated his powers something worthy of remembrance; and his latter years had been given to the composition of a work —his History of European Languages, already mentioned —which, if time had been allowed to finish it, would unquestionably have formed a splendid monument of his ingenuity and learning. It has been published since his death, in so far as it could be recovered from his manuscripts; and, although probably very far from what it would have been had he lived to arrange and complete it, is still a remarkable display of erudition and ingenious speculation. With all its defects, it formed at the time when it appeared an important contribution to philological literature.

Of Murray's short life, scarcely half was passed amidst those opportunities which usually lead to study and the acquisition of knowledge. The earlier portion of it was a continued struggle with everything that tends most to repress intellectual exertion and to extinguish the very desire of learning. Yet, in all the poverty and the many other difficulties and discouragements with which he had for his first eighteen years to contend, he went on pursuing his work of self-cultivation, not only as eagerly and steadily, but almost as successfully, as he afterwards did when surrounded by all the accommodations of study. It is a lesson that ought to teach us how independent the mind really is of circumstances, which tyrannize over us chiefly through our habits of submission, and by terrifying us with a mere show of unconquerable resistance. The worst are generally more

formidable in their appearance than in their reality, and when courageously attacked are more than half overcome. Had there been any obstacles of a nature sufficient to check the onward course of this enterprising and extraordinary boy, how often would he have been turned back in the noble career upon which he had entered! But, one after another, as they met him, he set his foot upon them and crushed them; and at last, after years of patient, solitary, unremitting labour, and of hoping as it were against hope, he was rewarded with all he had wished and toiled for.

CHAPTER XXIII.

SELF-TUITION OF POETS:—SHAKESPEARE; BURNS.

It is an interesting train of reflection which is excited by the fact, first noticed by Mr. Malone, that the father of SHAKESPEARE could not write his own name, a cross remaining to this day as his mark or signature in the records of the town of Stratford-upon-Avon, of which he was an alderman. Had the great dramatist himself been born half a century earlier, a few rudely scrawled crosses might have been the only efforts in the art of writing of that hand to which we owe so many an immortal page. That Shakespeare's own education, however, embraced not only English reading and writing, but also something of Latin, there can scarcely be a doubt. Dr. Farmer, in a well-known essay, has attempted to show that he never had acquired any knowledge of the ancient languages, and owed his acquaintance with classical literature entirely to translations. This is not a fair representation of the case. Shakespeare was evidently a great reader; his poetry abounds with allusions, more or less accurate, to all the learning of his age, of which not even the most curious and abstruse departments seem to have escaped his attention. Of this any one may convince himself merely by perusing a few pages of the elaborate commentaries that have been written upon his works, and observing how the erudition of succeeding times has exhausted itself, sometimes in vain, in attempting to pursue the excursive range of his memory and his fancy. It may be conceded, however, that his native tongue was probably the only one which he read with much facility, and that to it he was indebted for most of what he knew. And it is not to be overlooked,

that, in writing his plays in particular, it was probably deliberately, and upon system, that he preferred taking his version of the ancient story rather from the English translation than from the original author. In those days translations from the ancient tongues appear to have formed, in this country, no small part of the reading of the people, as the numerous performances of this kind which were produced within a few years, some of them by the ablest writers of the time, and the rapid succession of editions of several of them with which the press teemed, may serve to testify. Now it would seem to have been a maxim with Shakespeare always, so far as possible, to give his auditors a story that was familiar to them, and with which they had been long acquainted, rather than one, the novelty of which they would not so easily comprehend, or with which their old impressions and affections were not so likely to sympathize. Hence, although the most original of all writers in everything else, he seldom has recourse to his own invention for the plot or story of his drama, but seizes merely upon the popular tale. And several peculiarities in his style seem clearly to show that he possessed a fair knowledge of the vocabulary of the Latin language, and its common forms of phraseology; or about as much as is retained of their school learning by the greater number of those who study the ancient tongues in their youth. This perhaps is, after all, the view of the matter most consistent with the expression of his friend, Ben Jonson, who, in the verses he has written to his memory, represents him, not as entirely ignorant of ancient literature, but only as having had "small Latin, and less Greek."

But, however this may be, he must have taken to literature as a profession entirely of his own accord, and commenced and pursued the business of cultivating his powers by study, in the midst of circumstances very unfavourable to the prosecution of such an aim. Imperfect and uncertain as are the accounts we have of his early

years, tradition is uniform in representing him to have led for some time an unsettled life. He has been supposed, when very young, to have been for a short period in the office of a country attorney; but it is certain that he left his native place, and came up to London, with nothing but chance and his talents to depend upon, when he was about twenty-two years of age, having already a wife, to whom he had been married four or five years before, and several children. He gradually raised himself by his own exertions, till, from an actor he became a theatrical proprietor; when after having spent about twenty-six years in London, he returned to his native place, and purchased an estate, where he resided in affluence and respectability till his death.

Unfortunately, we know nothing of his studies, except by their imperishable produce. But, judging from his works, it seems plain that he must have been, as we have already said, an ardent and unwearied reader, a student both of the world of men and of the world of books. Indeed, when he first appeared in London, whatever his mere school education had been, his acquaintance with literature, owing to the nature of his subsequent pursuits and his scanty opportunities, could not but have been exceedingly circumscribed, and he must have made himself all that he afterwards became. His whole history, in so far as we know it, goes to prove him to have been, in his maturer days, a person of even and regular habits of life; first accumulating what was in those times an ample fortune by the sedulous exertions of many years, and then, as soon as he had acquired this competency, wisely bidding adieu to the contests and fatigues of ambition, and retiring from the town and from fame to the country to enjoy it. Nor shall we arrive at a different conclusion with regard to his diligence and application, from a considerate examination of those matchless creations of his fancy, which he has been ignorantly assumed to have thrown off with

a careless and random precipitancy. That a mind so rich and plastic as his formed and gave forth its conceptions with a facility such as slower powers may not emulate, may be easily believed; but, although very probably a rapid, he was certainly not a careless writer. It is curious enough that Jonson himself, to whom has been attributed the expression of a wish that his deceased friend had blotted much of what he has allowed to remain in his compositions, speaks in the poem already quoted of his

–"well-torned and true-filed lines;"

an expression which seems to impute to him rather consummate elaboration than inattention or slovenliness as a writer. The truth may probably be best gathered from the words of the address to the reader, prefixed to the first folio edition of the plays, in which his theatrical associates Heminge and Condel say, or are made to say, of him:—"Who, as he was a happy imitator of nature, was a most gentle expresser of it. His mind and hand went together; and what he thought, he uttered with that easiness, that we have scarce received from him a blot in his papers."

Abundant examples confute the common imagination that anything like regularity or diligence is either impracticable to high genius, or unfavourable to its growth and exercise. Perfect self-control is the crowning attribute of the very highest genius, which so far therefore, from unfitting its possessor to submit, either in the management of his time or the direction of his thoughts, to the restraints of arrangement and system, enables him, on the contrary, to yield to them as if he felt them not; and which, by exerting this supremacy over itself, achieves, in fact, its greatest triumphs. It is true that its far-seeing eye will often discern the error or inadequacy of theories and rules of discipline which to a narrower vision may seem perfect and incontrovert-

ible, and will violate them, accordingly, with sufficient audacity. But, when it does so, it is out of no spirit of wanton outrage, or from any inaptitude to take upon itself the obligations of a law; but merely because it must of necessity reject the law that is attempted to be imposed upon it, in order to be enabled to obey a higher and more comprehensive law of its own. It would be well if those would think of this, who, feeling within themselves merely a certain excitement and turbulence of spirit, the token, it may be, of awakening powers, but as certainly the evidence of their immaturity and weakness, mistake their feverish volatility and unsettledness of purpose for what they have been taught to call the lawlessness of genius; and thereupon fancy it is incumbent upon them to fly from all manner of restraint as perilous to their high prerogative. Genius is neither above law, nor opposed to it; but, provided only that the law to which it is sought to subject it be one worthy of its obedience, finds its best strength, as well as its most appropriate embellishment, in wearing its fetters. Art, which is the manifestation of genius, is equally the manifestation of judgment; which, instead, therefore, of being something irreconcileable with genius, may, from this truth, be discerned to be not only its most natural ally, but, in all its highest creations, its indispensable associate and fellow-labourer.

The name of Shakespeare naturally recalls that of BURNS, the next greatest poet (unless we reckon Homer in that list) that ever was formed merely or chiefly by the discipline of self-tuition; and also, considered without reference to his poetical powers, another striking example of what a man may do in educating himself, and acquiring an extensive acquaintance with literature, while occupying a very humble rank in society, and even struggling with the miseries of the most cruel indigence. Burns has himself given us a sketch of his early life in a letter to Dr. Moore. His father, a man

of a decidedly superior mind, and with even something of literary acquirement beyond his station, had led a life of hard labour and poverty; and at the time of his son Robert's birth was employed as gardener by a gentleman in the neighbourhood of the town of Ayr. A few years afterwards, he took a small farm, on which, however, his utmost exertions, and those of the members of his family who were of an age to give him any assistance, seem to have hardly sufficed to enable him to earn a subsistence without running in debt. "The farm," says his son, "proved a ruinous bargain. . . . . My father was advanced in life when he married: I was the eldest of seven children; and he, worn out by early hardships, was unfit for labour. My father's spirit was soon irritated, but not easily broken. There was a freedom in his lease in two years more; and to weather these two years we retrenched our expenses. We lived very poorly. I was a dexterous ploughman for my age; and the next eldest to me was a brother (Gilbert), who could drive the plough very well, and help me to thrash the corn. . . . . This kind of life—the cheerless gloom of a hermit, with the unceasing moil of a galley-slave—brought me to my sixteenth year."

On the expiration of this lease, his father took another farm. "For four years," continues Burns, "we lived comfortably here; but a difference commencing between him and his landlord as to terms, after three years' tossing and whirling in the vortex of litigation, my father was just saved from the horrors of a jail, by a consumption, which, after two years' promises, kindly stepped in, and carried him away *to where the wicked cease from troubling and the weary are at rest.*" Yet it was during this time that the future poet made his first important acquisitions in literature. "I was at the beginning of this period," says he, "perhaps the most ungainly, awkward boy in the parish;—no *solitaire* was less acquainted with the ways of the world. What I

knew of ancient story was gathered from Salmon's and Guthrie's Geographical Grammars; and the ideas I had formed of modern manners, of literature, and criticism, I got from the Spectator." He then goes on to enumerate the other books to which his reading extended. The whole formed a sufficiently miscellaneous collection, although not very numerous; the principal being Pope's Works, some Plays of Shakespeare, Locke's Essay on the Human Understanding, Stackhouse's History of the Bible, Allan Ramsay's Works, and a collection of English songs. "The collection of songs," he adds, "was my *vade mecum.* I pored over them driving my cart, or walking to labour, song by song, verse by verse, carefully noting the true tender or sublime, from affectation and fustian. I am convinced I owe to this practice much of my critic craft, such as it is."

He afterwards went for a few weeks to a village school, where he obtained some acquaintance with the elements of geometry, and the practical sciences of mensuration, surveying, and dialling. His reading, too, gradually enlarged, as accident threw new books in his way. He mentions, in particular, among those he met with, Thomson's and Shenstone's Works; "and I engaged," says he, "several of my schoolfellows to keep up a literary correspondence with me. This improved me in composition. I had met with a collection of letters by the wits of Queen Anne's reign, and I pored over them most devoutly. I kept copies of any of my own letters that pleased me; and a comparison between them and the compositions of most of my correspondents flattered my vanity."

In a letter from Gilbert Burns, which Dr. Currie has published, we have a still more particular account of the manner in which the father of this humble family struggled, in all his difficulties, to procure education for his children; from which, as interestingly illustrative of the extent to which the poorest have it in their power to

discharge this most important parental duty, we shall here transcribe a few sentences. "There being no school near us," says the writer, "and our little services being useful on the farm, my father undertook to teach us arithmetic in the winter evenings, by candlelight; and in this way my two eldest sisters got all the education they received. . . . My father was for some time almost the only companion we had. He conversed familiarly on all subjects with us, as if we had been men; and was at great pains, while we accompanied him in the labours of the farm, to lead the conversation to such subjects as might tend to increase our knowledge, or confirm us in virtuous habits. He borrowed Salmon's Geographical Grammar for us, and endeavoured to make us acquainted with the situation and history of the different countries in the world; while from a book society in Ayr he procured for us the reading of Derham's Physico and Astro Theology, and Ray's Wisdom of God in the Creation, to give us some idea of astronomy and natural history." Gilbert also gives us, in this letter, a more particular account of his brother's early reading. "Robert," he proceeds, "read all these books with an avidity and industry scarcely to be equalled. My father had been a subscriber to Stackhouse's History of the Bible, then lately published by James Meuross, in Kilmarnock: from this Robert collected a competent knowledge of ancient history; for no book was so voluminous as to slacken his industry, or so antiquated as to damp his researches. A brother of my mother, who had lived with us some time, and had learnt some arithmetic by our winter evening's candle, went into a bookseller's shop in Ayr to purchase the 'Ready Reckoner, or Tradesman's Sure Guide,' and a book to teach him to write letters. Luckily, in place of the 'Complete Letter Writer,' he got by mistake a small collection of letters by the most eminent writers, with a few sensible directions for attaining an easy epistolary style. This book was to

Robert of the greatest consequence. It inspired him with a strong desire to excel in letter-writing, while it furnished him with models by some of the first writers in our language."

After mentioning the manner in which his brother obtained a few of his other books, Gilbert goes on to state that a teacher in Ayr, of the name of Murdoch, to whom he was sent for two or three weeks by his father, to improve his writing, being himself engaged at the time in learning French, communicated the instructions he received to his ardent and persevering pupil, who, when he returned home, brought with him a French dictionary and grammar, and a copy of Telemachus. "In a little while," continues the writer, "by the assistance of these books, he had acquired such a knowledge of the language as to read and understand any French author in prose." He afterwards attempted to learn Latin, but did not prosecute the study so long as to make much progress. All this while the misfortunes and sufferings of this admirable father and his poor family continued to increase every day. Gilbert's picture of their condition is touching in the extreme. "To the buffetings of misfortune," says he, "we could only oppose hard labour, and the most rigid economy. We lived very sparing. For several years butcher's meat was a stranger in the house; while all the members of the family exerted themselves to the utmost of their strength, and rather beyond it, in the labours of the farm. My brother, at the age of thirteen, assisted in threshing the crop of corn, and at fifteen was the principal labourer on the farm, for we had no hired servant, male or female. The anguish of mind we felt at our tender years, under these straits and difficulties, was very great. To think of our father growing old (for he was now above fifty), broken down with the long-continued fatigues of his life, with a wife and five other children, and in a declining state of circumstances, these reflections produced in

my brother's mind and mine sensations of the deepest distress. I doubt not but the hard labour and sorrow of this period of his life was, in a great measure, the cause of that depression of spirits with which Robert was so often afflicted through his whole life afterwards. At this time he was almost constantly afflicted in the evenings with a dull headache, which at a future period of his life was exchanged for a palpitation of the heart, and a threatening of fainting and suffocation in his bed in the night time."

Murdoch, Burns's English master, although not a man of great learning, appears to have been a judicious elementary instructor, as well as to have possessed, in a remarkable degree, that zeal for the improvement of his pupils, and delight in witnessing their progress, which do more, perhaps, than anything else to render a teacher's efforts successful. In a letter addressed to Mr. Walker, and written some years after the death of the poet, this person says, "Upon this little farm (the first which Burns's father had) was erected an humble dwelling, of which William Burns was the architect. It was, with the exception of a little straw, literally a tabernacle of clay. In this mean cottage, of which I myself was at times an inhabitant, I really believe there dwelt a larger portion of content than in any palace in Europe." In noticing, afterwards, the ease with which his young pupils (Robert being then about six or seven years of age) learned their tasks, he remarks, "This facility was partly owing to the method pursued by their father and me in instructing them, which was, to make them thoroughly acquainted with the meaning of every word in each sentence that was to be committed to memory. By-the-bye, this may be easier done, and at an earlier period, than is generally thought. As soon as they were capable of it, I taught them to turn verse into its natural prose order; sometimes to substitute synonymous expressions for poetical words, and to supply all the

ellipses. These, you know, are the means of knowing that the pupil understands his author. These are excellent helps to the arrangement of words in sentences, as well as to a variety of expression." In the remainder of the letter the writer gives a very interesting account of the manner in which he and his pupil, at a future period, commenced and carried on their French studies. When Robert Burns was about thirteen years of age, Murdoch had been appointed parish schoolmaster of Ayr, upon which, as we have already mentioned, Burns was sent for a few weeks to attend his school. "He was now with me," says Murdoch, "day and night, in school, at all meals, and in all my walks. At the end of one week I told him, that, as he was now pretty much master of the parts of speech, &c., I should like to teach him something of French pronunciation; that, when he should meet with the name of a French town, ship, officer, or the like, in the newspapers, he might be able to pronounce it something like a French word. Robert was glad to hear this proposal, and immediately we attacked the French with great courage. Now there was little else to be heard but the declension of nouns, the conjugation of verbs, &c. When walking together, and even at meals, I was constantly telling him the names of different objects, as they presented themselves, in French; so that he was hourly laying in a stock of words, and sometimes little phrases. In short, he took such pleasure in learning, and I in teaching, that it was difficult to say which of the two was most zealous in the business; and about the end of the second week of our study of the French, we began to read a little of the Adventures of Telemachus, in Fénélon's own words."

Another week, however, was hardly over, when the young student was obliged to leave school for the labours of the harvest. "I did not, however," says Murdoch, "lose sight of him, but was a frequent visitant at his father's house when I had my half-holiday; and very

often went, accompanied by one or two persons more intelligent than myself, that good William Burns might enjoy a mental feast. Then the labouring oar was shifted to some other hand. The father and the son sat down with us, when we enjoyed a conversation, wherein solid reasoning, sensible remark, and a moderate seasoning of jocularity, were so nicely blended, as to render it palatable to all parties. Robert had a hundred questions to ask me about the French, &c.; and the father, who had always rational information in view, had still some question to propose to my more learned friends upon moral or natural philosophy, or some such interesting subject." It is delightful to contemplate such scenes of humble life as these—showing us, as they do, what the desire of intellectual cultivation may accomplish in any circumstances, and with how much genuine happiness it will irradiate the gloom even of the severest poverty.

We shall not pursue farther the history of Robert Burns. All know his sudden blaze of popularity—the misfortunes and errors of his short life—and the immortality which he has won by his genius. It is plain, from the details that we have given, that, even had he never been a poet, he would have grown up to be no common man. Whatever he owed to nature, it was to his admirable father, and his own zealous exertions, that he was indebted at least for that education of his powers, and that storing of his mind with knowledge, which, in so great a degree, contributed to make him what he afterwards became. It is an error to regard either Burns or Shakespeare as simply a poet of Nature's making. If learning be taken to include knowledge in general, instead of being restricted merely to an acquaintance with the ancient languages, it may be rather said that they were both learned poets—as, indeed, every great poet must be. Their minds, that of Shakespeare especially, were full of multifarious knowledge, which was the fruit both of vigilant observation and extensive

reading, and was perpetually entering into, and, in some degree regulating, the spirit or form of their poetry. The wonder in the case of each was, not that he produced poetical compositions of transcendant excellence without any acquaintance with literature, but that he acquired his literary knowledge in the face of difficulties which would have discouraged most men from making the attempt to gain it. Such minds, too, learn a great deal from a few, books, drawing both information and rules of taste from the writer they peruse with a rapidity and felicity of apprehension which people of inferior endowments cannot comprehend.

Gilbert Burns, the younger brother of Robert, had no turn for poetry; but he, too, derived infinite benefit from those studies which were intermixed, as we have seen, with the labours of his early days. To this excellent man, who died only in 1827, literature was the solace of a life of hardships. He never became a scholar in the ordinary sense of the word; his situation, that of a small farmer, did not require that he should give himself to the study of Greek or Latin; but he obtained an extensive acquaintance with the best books in his native language, and learned to write English in a manner that would not have done discredit to a scholar. Some of his letters, indeed, which Dr. Currie has printed, would be ornaments to any collection of epistolary compositions —especially a long one, dated October 1800, which appeared first in Dr. Currie's second edition of the poet's works; and which contains a disquisition on the education of the working classes, abounding in valuable remarks, and characterized by no ordinary powers both of expression and thought.

END OF VOL. I.

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